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ABSTRACT

The purpose of this publication is to stimulate interest in nontraditional environmental education (EE) research that has escaped the attention that such a growing body of works deserves. Abstracts of masters theses and doctoral dissertations in this volume include: (1) descriptions and development plans for EE areas; (2) studies dealing with camps and parks; (3) examinations of the effectiveness of different forms of media; (4) research dealing with pupils; (5) research on the training, attitudes, and behavior of teachers; (6) research dealing with citizens' attitudes and involvement; (7) descriptions of special EE efforts in metropolitan areas; (8) studies dealing with EE in other countries; and (9) studies dealing with the administration of EE programs. Also included in this volume is an index to past volumes and a directory of graduate programs in environmental education and communication organized by state. (CW)

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ED307107

RECENT GRADUATE WORKS AND PROGRAMS IN ENVIRONMENTAL EDUCATION AND COMMUNICATIONS

Prepared for the

North American Association for Environmental Education

December 1987

Volume X

SE050550

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Copies of this volume, as well as the 1978 through 1986 editions, are available from: NAEE, P. O. Box 400, Troy, Ohio 45373 for $5.00 for NAEE members and $6.00 for non-members.

If you wish to contribute to future publications, please contact Dr. Jody M. Stone, Department of Teaching, University of Northern Iowa, Cedar Falls, Iowa 50613-3593.

INTRODUCTION

Recent Graduate Works and Programs in Environmental Education and Communications is Volume X in a series that continues to attract and publish abstracts of relevant theses, dissertations, and project abstracts. This reference work is a cooperative effort of the North American Association for Environmental Education and the University of Northern Iowa.

The publication's title reflects an active desire to stimulate interest in nontraditional environmental education research that has escaped the attention that such a growing body of works deserves. At the same time, the publishers remain committed to reproducing abstracts of masters theses and doctoral dissertations that also enrich the environmental education field.

Abstracts included in this volume are organized into nine categories: (1) Site Analysis--descriptions and development plans for areas to be used for environmental education; (2) Parks and Camps: Users and Interpreters--studies dealing with park and camp programs, especially user characteristics and interpretive techniques; (3) Media Communications--examinations of the effectiveness of various forms of media; (4) Pupil-centered Studies--research dealing with characteristics of pupils; (5) Teacher-centered Studies--research focusing on training, attitudes, and behavior of teachers in the school setting; (6) Citizen-centered Studies--research dealing with the attitudes, values, and involvement of citizens in environmental problems; (7) Urban EE--descriptions of special EE efforts in larger metropolitan areas; (8) International EE--studies dealing with environmental education efforts in other countries; and (9) Administration and Other EE Related Studies--studies dealing with environmental education administration of facilities, as well as studies which do not fit into categories 1-8 above.

The annual request for abstracts begins in the spring of the publication year. Explanatory letters and printed abstract forms are mailed to an ever-increasing list of graduate departments of environmental education, park administration, natural history interpretation, environmental studies, communications, journalism, and other related areas. This broad coverage is designed to encourage responses from a range of programs which generate research related to environmental education and communications.

Since the publication of Volume VI, each edition of Recent Graduate Works contains an Index to Past Volumes. This feature allows readers to quickly survey published abstracts by year and subject category for items of potential interest. The relevant abstracts may then be located and studied in the appropriate volumes. (Volume I was published in 1978.) In addition, this publication offers an expanded directory of graduate programs in

environmental education and communications. It is hoped that these aids increase the value of Recent Graduate Works as a reference tool for educators, administrators and students.

The lifeblood of these volumes is comprised of the institutions they feature and the readers who utilize them. At its best, the annual publication can operate on the leading edge of the environmental education field, documenting research trends and educational opportunities. The publishers wish to thank the contributors to this year's issue. They and others are encouraged to provide abstracts, program information and suggestions so that the 1988 volume will reflect continued improvement of the series' quality and usefulness.

Jody M. Stone
Project Director and Editor

SITE ANALYSIS

Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE Cooperative Research on the Lower Salmon River to Monitor Recreation Uses and to Evaluate the Effectiveness of Information/ Education Programs in Reducing Impacts

AUTHOR Deborah K Rawhouser **DATE OF COMPLETION** April, 1947

INSTITUTION University of Idaho

DEPARTMENT / PROGRAM Wildland Recreation Management

INDICATE APPROPRIATE CATEGORY:

☒ Master's Thesis ☐ Project, Paper, Article ☐ Doctoral Dissertation

THESIS ADVISOR Dr Charles C Harris

WHERE FULL THESIS IS AVAILABLE Dept of Wildland Recreation Mgmt , Univ of Idaho, Moscow, ID 83843

This thesis consists of two papers detailing cooperative research projects conducted on the Lower Salmon River by the Bureau of Land Management recreation manager and University of Idaho, Department of Wildland Recreation Management researchers. The first paper presents the methodology used to gather and apply recreation use information along a 60 mile stretch of roaded river corridor. Implementation of statistical sampling approach, use estimation procedures, and application of the results are described.

The second paper presents the comprehensive evaluation of a nontraditional approach to the problem of reducing human waste and open campfire impacts along a semi-primitive portion of the Lower Salmon River. In 1983, the river manager developed and implemented an information/education program to reduce human waste impacts. This program was evaluated in 1984. In 1985, the program was expanded to educate the public about the necessity of using firepans. The paper describes a field experiment and cost-effectiveness analysis conducted by the Bureau of Land Management and the University of Idaho to determine the effectiveness of these programs. The paper concludes with a discussion of the study's implications for future management actions and future research efforts.

Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE The Identification and Evaluation of Indicators to Monitor Wilderness Conditions

AUTHOR Linda L. Merigliano

DATE OF COMPLETION May, 1987

INSTITUTION University of Idaho

DEPARTMENT / PROGRAM Wildland Recreation Management

INDICATE APPROPRIATE CATEGORY:

☑ Master's Thesis ☐ Project, Paper, Article ☐ Doctoral Dissertation

THESIS ADVISOR Dr. Edwin E. Krumpe

WHERE FULL THESIS IS AVAILABLE Dept. of Wildland Recreation Mgmt., University of Idaho
Moscow, ID 83843

Wilderness managers have recently become interested in developing monitoring programs due to legislative mandates and the development of planning frameworks such as the "Limits of Acceptable Change." Monitoring programs seek to detect human-caused changes in desired wilderness conditions through the use of indicators which are defined as specific elements of the wilderness setting (physical, biological and experiential) that change in response to human activities. However, managers clearly cannot afford to monitor every aspect of the wilderness environment. To date there has been little information available to help managers select indicators that have a proven ability to detect changes in biological, physical, and human wilderness conditions.

The goal of this exploratory study was to bring together current information to identify and evaluate indicators which could be used to monitor human-caused change in wilderness conditions. Current information was obtained through a literature review and by consulting a panel of scientists who had conducted research in natural areas. Ninety-nine scientists contributed information on indicators through a four-step mailed questionnaire process known as the Delphi method. Nine criteria, that reflect properties indicators should meet, were developed to provide a common basis for the identification and evaluation of indicators. Flowcharts were developed to show a possible relationship between indicators identified by scientists and biological, physical and human wilderness components.

The combined results of the literature review and Delphi study provide information on 76 indicators. Study results include a rank order of all identified indicators. Thirty-two of the most frequently selected indicators were evaluated in terms of whether or not each indicator met each of the nine criteria. Indicators which detect highly visible changes in wilderness conditions performed best on the criteria.

This study has confirmed that the identification and evaluation of indicators to monitor wilderness conditions is extremely complex. Given the current state of knowledge, managers will need to monitor many indicators to insure that unacceptable changes in desired wilderness conditions are not occurring. Research is needed to develop measurement techniques and field-test indicators in various ecosystems. Research is also needed to develop monitoring techniques to detect subtle, long-term changes in wilderness conditions.

Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE The Management of Impacts on Aquatic Resources at New Mine Developments in British Columbia

AUTHOR Malcolm Winsby **DATE OF COMPLETION** May 1986

INSTITUTION University of British Columbia

DEPARTMENT / PROGRAM School of Community & Regional Planning

INDICATE APPROPRIATE CATEGORY:

☒ Master's Thesis ☐ Project, Paper, Article ☐ Doctoral Dissertation

THESIS ADVISOR Anthony H. J. Dorcey

WHERE FULL THESIS IS AVAILABLE Inter-Library Loans, U.B.C. Main Library

This thesis evaluates the analytical methods and review procedures used for assessing the impacts on aquatic resources from metal mines in British Columbia. The specific objectives are to evaluate the effectiveness of pre-development assessment studies for anticipating eventual impact management problems, to evaluate analytical weaknesses in the pre-development studies; and, to develop recommendations for improving the methods and procedures currently used for impact management planning.

To evaluate the effectiveness of pre-development studies, impact management problems were reviewed for fifteen mines. Pre-development reports submitted by the mine proponents before mine production began were then reviewed to determine to what extent the problems had been anticipated. Twenty-four problems were identified amongst eight mines. Pre-development assessments anticipated 18 of the eventual problems. The relative seriousness of the problems varied considerably. The most serious problems were related to the routine discharge of material (cyanide and metals at gold mines) and to a site-runoff problem (the generation of acid in waste rock at one sulphide ore mine). However, the most common problems (46%) were associated with equipment and structural failures, mainly tailings facilities (i.e., lines, pumps, and dams). The pre-development assessments were generally more effective for identifying problems related to routine discharge sources and to general site runoff than to the more common equipment and structural failures.

To evaluate the analytical methods used in the pre-development studies, the following factors were examined: the apparent influence of government guidelines and procedures; the theoretical weaknesses in the methods used; and, the improvements to analytical methods suggested in recent government terms of reference (TOR's). In addition, the types of information and methods used in monitoring and follow-up studies were examined for comparison with the pre-development studies. The approaches and methods used in Stage I studies have been strongly influenced by the 1979 "Procedures" prepared by the B.C. Ministry of Energy, Mines and Petroleum Resources. The Procedures recommend a checklist of topics to address but provide poor guidance on how impact analyses are to be used for developing impact management measures. The more recent site-specific TOR's request more detailed information than generally presented in previous reports submitted by mine proponents. The main analytical weaknesses are: the unclear relationship between the management plans and monitoring programs and the specific resources at risk; and, the absence of critical appraisals of impact management measures, in order to develop a fall-back strategy in the event that the chosen measure is found to be inadequate.

Recommendations include: the development of an early and explicit description of the linkages expected between a particular mine and important resources; the preparation of alternate or "fall-back" measures that would be implemented in the event that the chosen methods did not work; the preparation by government agencies of the types of information required to develop effective contingency plans; and, the clear separation of information intended to describe important resources from that which is quantitative baseline data to be used during follow-up monitoring and assessments. Opportunities are identified for the mining industry to undertake a stronger role in the development of analytical standards for impact assessment, both to absorb some of the costs of developing assessment procedures and to increase understanding amongst proponents as to the kind of analytical and impact problems that exist.

Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE A Planned Strategy For Developing Burrard Inlet's Shore-based Sport Fisheries

AUTHOR Scott Renyard **DATE OF COMPLETION** November 1986

INSTITUTION University of British Columbia

DEPARTMENT / PROGRAM School of Community & Regional Planning

INDICATE APPROPRIATE CATEGORY:

☒ Master's Thesis ☐ Project, Paper, Article ☐ Doctoral Dissertation

THESIS ADVISOR Anthony H. J. Dorcey

WHERE FULL THESIS IS AVAILABLE Inter-Library Loans, U.B.C. Main Library

Sports angling in Pacific Northwest waters has been predominantly for salmon from small recreational boats. This has led to a concentration of management resources on the sport salmon fishery. Eight shore-based sport fisheries in Burrard Inlet, however, do not fit into the management framework in place for the boat salmon fishery and have, therefore, been neglected. In contrast, shore-based sport fisheries have been developed in the U.S. and elsewhere, and have realized social, environmental and economic benefits, for urban communities. This thesis analyzes Burrard Inlet shore-based sport fisheries and proposes a strategy for improving them to satisfy possible latent demands.

. Little was known about Burrard Inlet's shore-based sport fisheries so several methods have been used to characterize these fisheries and the network of management agencies. The methods include a survey of shore anglers, a telephone survey of numerous public agencies, and an informal workshop with professionals interested in Burrard Inlet shore fishery development.

The proposed planned strategy outlines the managerial, organizational and promotional concerns in developing Burrard Inlet's shore-based sport fisheries. In general, all of the shore sport fisheries can be managed together with artificial reef/angling pier developments, excepting to some extent the smelt and salmon fisheries. This collective management scheme allows the managing agency to establish commonly fished and habitat reserve areas for the species used in Burrard Inlet's fisheries.

This strategy restricts angling in some areas and encourages it in other areas for most of the species. This will ensure some protection of stocks in our intensely fished area and will simplify the task of enforcing area closures. The relationships between managing agencies and shore anglers have, in the past, been informal. It is proposed that some of the agencies around the inlet form an inter-agency committee to streamline the development process. The inter-agency committee should also improve its relationship with the shore anglers and encourage the anglers to take some of the responsibility of improving the fishery themselves. Since the Burrard Inlet fisheries are not well known in the community, to achieve the development objectives promotion of its value may be needed. It is suggested that the fishery be promoted in two phases. The first phase would be undertaken by the existing informal DFO shore fishery committee to encourage other agencies to form the inter-agency committee. The second phase would be undertaken by the newly formed joint committee to gain the support and investment from the general public, the shore anglers and the private sector.

PARKS AND CAMPS: USERS AND INTERPRETERS

Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE An Evaluation of the School and Field Components of the Outreach Program of Old Woman Creek National Estuarine Sanctuary

AUTHOR April Calhoun Lahm **DATE OF COMPLETION** Autumn 1986

INSTITUTION Ohio State University

DEPARTMENT / PROGRAM Natural Resources

INDICATE APPROPRIATE CATEGORY:

☒ Master's Thesis ☐ Project, Paper, Article ☐ Doctoral Dissertation

THESIS ADVISOR Rosanne W. Fortner

WHERE FULL THESIS IS AVAILABLE Ohio State University

The education program at Old Woman Creek is one of the best developed of all the National Estuarine Sanctuaries. An evaluation and documentation of this program, a combination of previsit instruction and sanctuary field trip, serves as a model for other sanctuaries. After testing fourth and fifth graders that participated in the program, the following conclusions were reached. First, an increase in knowledge occurred, mostly within the school activities. Second, a positive change in attitude also occurred, the change decided between the school activities and the sanctuary visit. Third, teachers were enthusiastic about the program, cooperating fully with the educational effort of Sanctuary personnel.

Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE Evaluation of the Educational Effectiveness of Interpretive Exhibits For Adult Visitors of The Old Woman Creek National Estaurine Research Reserve and State Nature Preserve

AUTHOR Marjorie Pless **DATE OF COMPLETION** Winter 1987

INSTITUTION Ohio State University

DEPARTMENT / PROGRAM School of Natural Resources

INDICATE APPROPRIATE CATEGORY:

☒ Master's Thesis ☐ Project, Paper, Article ☐ Doctoral Dissertation

THESIS ADVISOR Dr. Rosanne W. Fortner

WHERE FULL THESIS IS AVAILABLE Ohio State University

Shifts in adult attitudes and knowledge of facts and concepts after exposure to exhibits at a National Estaurine Research Reserve visitor center were investigated. Multiple-choice evaluation forms (both paper and computerized) were randomly assigned through the Separate-Sample Pretest-Posttest Design. Observations were made of the visitors' behavior in the center. A slight, but significant, positive shift in knowledge score occurred, primarily after exposure to one particular exhibit. Three-dimensional and hands-on exhibits tended to attract and hold visitors' attention more than other exhibit types. No attitude shifts were detected. Similar types of investigations in nonformal learning centers were suggested.

Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE Profiles of and Associations Among Learning Styles and Teaching Characteristics of Environmental Interpretive Technicians and Learning Styles of Campers in Pennsylvania State Parks

AUTHOR Lorraine C. Weidner **DATE OF COMPLETION** 1986

INSTITUTION The Pennsylvania State University

DEPARTMENT / PROGRAM Department of Recreation and Parks

INDICATE APPROPRIATE CATEGORY:

☒ Master's Thesis ☐ Project, Paper, Article ☐ Doctoral Dissertation

THESIS ADVISOR Patricia Farrell

WHERE FULL THESIS IS AVAILABLE Interlibrary Loan, Pattee Library, University Park, PA 16802

The purposes of this study were to determine whether each environmental interpretive technician (EIT) taught with the same characteristics that he or she preferred for learning and whether EITs used teaching characteristics that campers preferred for learning. Nineteen female and 24 male EITs ages 17 to 58 employed by the Pennsylvania Bureau of State Parks were sampled. Census and systematic samples of campers included 81 females and 75 males ages 19 to 71. An adapted Learning Style Inventory determined preferred learning styles of EITs and campers and the General Teaching Characteristics Checklist assessed the preferred teaching characteristics of EITs. Demographic Data Sheets provided information about all subjects. EIT teaching characteristics were dependent upon their learning styles. Camper learning styles were dependent upon EIT teaching characteristics. EITs were sampled in May and campers were sampled in July and August, 1985. X^2 ($p<.05$) revealed significant differences among EIT teaching characteristics, among camper learning styles, and between these two variables. EITs preferred to teach as Convergers and Accommodators while campers preferred to learn as Divergers and Assimilators. Contrary to previous findings, EITs did not teach with the same characteristics that they preferred for learning.

Environmental Education / Communication
Project or Thesis Report Form

North American Association for Environmental Education

TITLE The Use of Multidimensional Scaling and Euclidean Regression in the Analysis of Outdoor Recreation Use Patterns: A Pilot Investigation

AUTHOR C. A. Pella **DATE OF COMPLETION** 1986

INSTITUTION The Pennsylvania State University

DEPARTMENT / PROGRAM Department of Recreation and Parks

INDICATE APPROPRIATE CATEGORY:

☒ Master's Thesis ☐ Project, Paper, Article ☐ Doctoral Dissertation

THESIS ADVISOR M. L. Christiansen

WHERE FULL THESIS IS AVAILABLE Interlibrary Loan, Pattee Library, University Park, PA 16802

Outdoor recreation use pattern data has been analyzed from a variety of traditional methodological perspectives. A new perspective analyzes use patterns as a function of the user, not the recreation area. The methodologies of multidimensional scaling (MDS) and Euclidean regression (ER) are explored, and their usefulness in analyzing use patterns is examined. The basic concepts of MDS and ER are explained, and the computer algorithms KYST and EUCLID are introduced. In pilot study form, data collected at Presque Isle State Park (Erie, PA) is analyzed using MDS and ER. A map of "park user space" is constructed which illustrates the park "collapsing" to a point. This "point" in user space was identified as the multipurpose trail at Presque Isle. Based on limited data, the author concluded the trail was central to visitor use of Presque Isle State Park. MDS and ER were seen as appropriate tools to be used in the analysis of recreational area use patterns. Full-scale studies using MDS and ER are suggested.

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MEDIA COMMUNICATIONS

Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE Images of the National Forest System
A Content Analysis of National Forest Brochures

AUTHOR Kathleen M. Kopitsky **DATE OF COMPLETION** Aug. 1987

INSTITUTION West Virginia University

DEPARTMENT / PROGRAM Division of Forestry/Recreation and Parks Management

INDICATE APPROPRIATE CATEGORY:
☒ Master's Thesis ☐ Project, Paper, Article ☐ Doctoral Dissertation

THESIS ADVISOR Dr. Lei Lane Bammel

WHERE FULL THESIS IS AVAILABLE Wise Library: WVU

The main purpose of this study was to illustrate how organizations can evaluate their own publications through the use of a method called content analysis. Letters of inquiry were sent to the 115 administrative units of the Forest Service on the US mainland. This served as the basis of the study.

Content analysis is a formal system for doing something people do informally rather frequently, drawing conclusions from observations of content. It is defined as the systematic counting, assessing and interpreting of the form and substance of communications. Content analysis involves five steps: 1) definition of population, 2) determining the sample, 3) isolating the unit of analysis, 4) content analysis, and 5) statistical analysis. The population for this study was the collection of documents received from the 115 Forest Service administrative units (100% response rate); with the sample being two identified subgroups: national forest brochures and major attraction brochures. Several units of analysis were examined: photographic units, syntactical units, affective units, graphic units, and thematic units. The content analysis was accomplished in approximately six months. Presentation and analysis of data was done through the use of frequencies and percentages.

On the basis of the results, several statements could be made pertaining to the media presentation of these brochures:

1) Forest Service personnel, females, seniors, minorities, the handicapped, and wildlife were underrepresented in the photographs.
2) Females were misrepresented in the photographs.
3) The reading level of the test was too high.
4) Sexist language was minimal in the text.
5) Low affective responses were solicited from the brochures.
6) The majority of the media area was devoted to maps.
7) The major theme running throughout the brochures concerned health and safety.

Content analysis is a viable method for the evaluation of publicly disseminated communications. The United States Forest Service is a personable organization that seems willing to make the effort to aid the public with outdoor recreational pursuits. Individually, many brochures were excellent. Collectively, however, how and what the Forest Service is communicating to the general public deserve further attention.

PUPIL-CENTERED STUDIES

Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE Drawing: A Medium Used in Sensory Awareness After a Planned Hands-on Experience

AUTHOR Donald Paul Ayers **DATE OF COMPLETION** May 8, 1987

INSTITUTION Slippery Rock University of Pennsylvania

DEPARTMENT / PROGRAM Parks and Recreation/Environmental Education

INDICATE APPROPRIATE CATEGORY:

☒ Master's Thesis ☐ Project, Paper, Article ☐ Doctoral Dissertation

THESIS ADVISOR Dr. Craig C. Chase

WHERE FULL THESIS IS AVAILABLE Dept. PK/RC - EE, Slippery Rock University

This study will attempt to evaluate a hands-on experience of preschool children and the effects it has on their sensory awareness. This will be attempted by using the AHOAT (Ayers Hands On Awareness Test). This test is a national standard developed to measure environmental sensitivity.

The intent of this study is two-fold: (1) to observe noticeable differences in drawings of trees before and after a planned hands-on experience of preschool children; (2) to compare drawings of trees drawn by the hands-on group, with the drawings made by a control group of preschool children who have not participated in a planned hands-on experience.

The study will be conducted at the Little People's Day Care Center in Malvern, Pennsylvania. Approximately 32 children, three to five years of age, who attend the center will be the subjects. The subjects will be divided into two groups. Group I will consist of eight male and eight female. Group I will participate in a planned hands-on experience involving trees. Group II will consist of eight male and eight female. Group II will not participate in a planned hands-on experience involving trees.

Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE Environmental Education Revisited: An Action Research Approach to School-based Community Environmental Problem Solving

AUTHOR Giovanna Di Chiro **DATE OF COMPLETION** 12/1985

INSTITUTION University of Michigan

DEPARTMENT / PROGRAM School of Natural Resources

INDICATE APPROPRIATE CATEGORY:

☒ Master's Thesis ☐ Project, Paper, Article ☐ Doctoral Dissertation

THESIS ADVISOR Professor William B. Stapp and Associate Professor Bunyan Bryant

WHERE FULL THESIS IS AVAILABLE University of Michigan-Natural Science Library

The theoretical foundations and mission of EE qualify it as a "democratic pedagogy" that could engage in praxis to create a free and humanistic society, yet it has resisted to educate for interrogation and critique. This thesis will explore some of the historical and philosophical roots of the EE concept, and will offer an analysis of the innovation's attempts at significantly altering the goals and processes of education. It will then present the theory and principles of an alternative educational and research methodology, action research, and submit it as a process that may more effectively further the goals of EE as they were envisioned in the early developmental years of the movement. Through a case study, the thesis examines the coimplementation of action research and environmental education in the context of an elementary school classroom. The case surfaces a variety of educational and research issues that may have relevance to theorists and practitioners in the field of environmental education.

Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE Evaluation in Michigan Middle Schools of a Science Education Curriculum Based on Ruffed Grouse

AUTHOR Rebecca Jean Stout **DATE OF COMPLETION** Dec., 1986

INSTITUTION Michigan State University

DEPARTMENT / PROGRAM Fisheries and Wildlife: Public Dimension

INDICATE APPROPRIATE CATEGORY:

☒ Master's Thesis ☐ Project, Paper, Article ☐ Doctoral Dissertation

THESIS ADVISOR R. Ben Peyton

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A science education curriculum based on ruffed grouse ecology and management was evaluated using volunteer 7-8th grade Michigan science teachers and their students. The project represents an infusion model to combine the educational objectives of a special wildlife interest group (Ruffed Grouse Society), science education and general education. Activities involve students in team centered, inquiry strategies to analyze actual ruffed grouse ecological data to test hypotheses and recommend management programs. Students are eventually moved from the role of scientist to manager and eventually consider social value conflicts regarding forest/wildlife management alternatives. The instructional model relied heavily on small groups and required communication within groups during inquiry and between groups in the form of formal reports.

A statewide population of appropriate middle school science teachers was created by asking for volunteers to participate in the field test. These were randomly divided into experimental (used curriculum) and control groups. The curriculum was evaluated by teacher surveys collected during the following instruction, and by student achievement tests. A quasi-experimental pretest-posttest design with control group measured student cognitive gains and attitude changes using a self-developed test on six scales.

Students learned science, wildlife management and ecology concepts and ruffed grouse natural history and management concepts. Positive attitude change was noted for science, wildlife management and small group work, but not for wildlife values or hunting. Teachers were favorable towards curriculum content and organization, but were less confident with small groups and inquiry instructional methods, indicating a need for some workshop introduction to assure full implementation of strategies.

Environmental Education / Communication
Project or Thesis Report Form

North American Association for Environmental Education

TITLE Integration of Environmental Goals and the New York State Science Syllabus for Middle Schools With Emphasis on the Non-Regents Student

AUTHOR Irene Caldwell Arenson

DATE OF COMPLETION 5/9/87

INSTITUTION Suny, College of Environmental Science & Forestry

DEPARTMENT / PROGRAM Graduate Program In Environmental Studies

INDICATE APPROPRIATE CATEGORY:

☒ Master's Thesis ☐ Project, Paper, Article ☐ Doctoral Dissertation

THESIS ADVISOR Dr. Dave Hanselman

WHERE FULL THESIS IS AVAILABLE SUNY, ESF, Syracuse, N.Y. 13210

The thesis explores the evolution of presently accepted environmental curricula, standards and methodology. This analysis provides a frame of reference with which to examine the New York State Science Syllabus for Middle-Junior High School, Block J "Science, Technology and Society." The examination is directed towards the development, field testing, and evaluation of a prototype curriculum unit (PCU) based upon an action research methodology and the established goals of environmental education (EE). The developed unit integrated the goals of EE and the core concepts of the Block J Syllabus as established by the New York State Education Department. The PCU was field tested with two seventh grade non-regents classes in a semi-rural school district. The PCU is applicable to all science programs studying the interactions of Science, Technology and Society.

The PCU examines a local environmental problem, contamination of the ground water supply by unknown sources. Included for study are the related science and technological implications of that problem. The unit was systematic in its approach and includes the means for objective and subjective evaluation of the problem. During the process, students were asked to confront their own attitudes toward the problem, and to examine the factors that led to those attitudes. It moves from the development of environmental awareness, through understanding and concludes with citizenship actions leading towards possible resolution of the problem. It provides the means for student investigation, synthesis of information, and group decision making. Through extension, it provides an opportunity to study the social, political and economic factors involved.

The evaluation of the PCU indicates growth in cognitive and affective skills, high student interest and participation, increased library usage and reduces absenteeism. The effectiveness of the PCU is enhanced by interdisciplinary studies. It lends itself to the team teaching framework found in many junior high schools but is also applicable to singular use by a science department when team teaching is not possible.

TEACHER-CENTERED STUDIES

Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE Current Environmental Education Efforts in Ohio School Districts

AUTHOR Timothy Alan Taylor DATE OF COMPLETION Fall 1986

INSTITUTION Ohio State University

DEPARTMENT / PROGRAM School of Natural Resources

INDICATE APPROPRIATE CATEGORY:

☒ Master's Thesis ☐ Project, Paper, Article ☐ Doctoral Dissertation

THESIS ADVISOR Dr. Rosanne W. Fortner

WHERE FULL THESIS IS AVAILABLE Ohio State University

Educators in one hundred randomly selected high schools in Ohio were questioned to determine the extent of environmental education in their curricula. Responses were examined for relationships between school size, type of school district, location of school district, and the number and type of courses offered that contained environmental education topics.

The study showed that there were no relationships between any of the items studied except for the environmental education courses and their curricular headings.

Three environmental education topics were taught in at least fifty percent of the courses with infusion of topics in several other courses.

Environmental Education / Communication
Project or Thesis Report Form

North American Association for Environmental Education

TITLE Successful Strategies for Teaching Environmental Problem Solving Skills

AUTHOR Martha Monroe **DATE OF COMPLETION** 1986

INSTITUTION University of Michigan

DEPARTMENT / PROGRAM School of Natural Resources

INDICATE APPROPRIATE CATEGORY:

☒ Master's Thesis ☐ Project, Paper, Article ☐ Doctoral Dissertation

THESIS ADVISOR Professor William B. Stapp and Professor Stephen Kaplan

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In the wake of the educational community's recent interest in teaching about complex issues and problem solving skills, environmental education may be able to offer some assistance. Despite the lack of community, administrative, and curricular support, there are teachers who, in their own way, help students develop problem solving abilities. With computer simulation games, field trips to state governmental agencies, role plays of public hearings, letters to environmental managers, playground clean-up, and bake sales for international famine relief, a few undaunted educators are achieving some degree of success.

This thesis focuses on classroom teachers who believe they help students develop problem solving skills with regard to complex environmental issues. Information about their curriculum, instructional style, and background was collected with a survey to identify similarities and successful strategies for teaching problem solving in American schools.

Chapter One establishes environmental education's history in problem solving and the incongruence between this goal and common practice. Chapter Two defines problem solving and environmental problem solving, and reviews the literature from psychology and environmental education about environmental problem solving. The research methodology is described in Chapter Three, and the results are presented and analyzed in Chapter Four. Chapter Five summarizes the key findings of this study and outlines recommendations for further research.

CITIZEN-CENTERED STUDIES

Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE Landscape Architects and Environmental Concern: An Examination of Attitudes, Verbal Commitment and Actual Commitment

AUTHOR Anita Anne Rulz **DATE OF COMPLETION** Winter 1987

INSTITUTION Ohio State University

DEPARTMENT / PROGRAM School of Natural Resources

INDICATE APPROPRIATE CATEGORY:

☒ Master's Thesis ☐ Project, Paper, Article ☐ Doctoral Dissertation

THESIS ADVISOR Dr. Rosanne W. Fortner

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Attitudes, verbal commitment, and actual commitmemt regarding the environmental concern landscape architects registered and living in California, Connecticut, Florida, or Washington have as citizens were assessed in this study. A sexually stratified random sample was used that equally decided the participants per state as either ASLA members or nonmenbers. Landscape architects held positive attitudes and verbal commitment to environmental concern that were not reflected in actual commitment. A significant positive relationship existed between time devoted to 'pro bono' work and 'civic activites' and actual commitment to environmental concern. While attitude and verbal commitment were similar, ASLA members reported significantly higher actual commitment than nonmembers.

Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE Public Participation and the Preparation of Official Community Plans in British Columbia, Canada

AUTHOR Dan Gauld **DATE OF COMPLETION** May 1987

INSTITUTION University of British Columbia

DEPARTMENT / PROGRAM School of Community & Regional Planning

INDICATE APPROPRIATE CATEGORY:

☒ Master's Thesis ☐ Project, Paper, Article ☐ Doctoral Dissertation

THESIS ADVISOR Dr. Henry C. Hightower

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Public participation in the planning process is a well established concept and an important one to municipal planners as they deal with the question of how to most effectively involve citizens in planning. The purpose of this study is to assess the effectiveness of techniques and processes used to involve the public in a specific planning process: the preparation of official community plans in British Columbia.

Two principal methods are used to achieve this purpose: a literature review and a comparative analysis of the experiences of four municipalities located in the greater Vancouver region which have recently completed or are near completion of official community plans. Data for this analysis came from municipal documents, interviews with planners and field observation.

Six process-oriented objectives based on democratic principles are established as criteria of effective public participation. The six criteria are:

(1) Accessibility - all citizens have the opportunity and are encouraged to participate;
(2) Timing - the public is provided with information and opportunities to participate at crucial decision making points in the planning process;
(3) Impartiality - no individual or group is permitted to dominate the participation process at the expense of others;
(4) Comprehensibility - important information is provided and is presented in such a way that it is understood by those whom it affects;
(5) Alternatives - the public is presented with a range of alternatives;
(6) Efficacy - participators' views are considered in products of the planning process.

The suitability of each participation technique and combination of techniques used in the four municipalities is assessed by these six objectives.

Nine summary observations derived from the analysis are presented as suggestions to help planners effectively involve the public in future official community plan processes. It is found that effort to involve citizens in the preparation of an official community plan must go beyond the techniques required or suggested by legislation. A public hearing and an advisory planning commission are not sufficient to provide effective participation. It is not possible to state an ideal public participation program with a set of specific techniques that would be useful in all communities preparing an official community plan. However, by designing and implementing a participation program that strives to satisfy the process-oriented objectives, planners can obtain meaningful response from the public. Achieving these objectives depends foremost on administrative commitment.

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URBAN EE

Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE The Comprehensive Development of an Urban Environmental Education Center

AUTHOR Meryl Abrams, Anne Cooper, Brian Devlin, Michael Hayes, Kenneth Rapp, Michelle Zurek **DATE OF COMPLETION** May 1, 1987

INSTITUTION University of Michigan

DEPARTMENT / PROGRAM School of Natural Resources

INDICATE APPROPRIATE CATEGORY:

☒ Master's Thesis ☐ Project, Paper, Article ☐ Doctoral Dissertation

THESIS ADVISOR Paul Nowak and Orin G. Gelderloos

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A project group was assembled with the premise that the development of an educational program and the design of a building and grounds to support such a program should be integrated. These designs should facilitate the objectives of the program. Building construction, energy demand, and maintenance requirements of the site should all stand as concrete examples of design influenced by an environmental ethic.

Part One of this paper begins in the first chapter by defining environmental education and its goals, and describes the unique contribution of urban environmental education.

Part Two describes administrative aspects of managing the Center and its programs.

Part Three proposes the architectural design of the building and the surrounding site.

Environmental Education / Communication
Project or Thesis Report Form

North American Association for Environmental Education

TITLE The Effects of Neighbourhood Traffic Management Plans in Overall Transportation Planning

AUTHOR Heike Roth **DATE OF COMPLETION** May 1986

INSTITUTION University of British Columbia

DEPARTMENT / PROGRAM School of Community & Regional Planning

INDICATE APPROPRIATE CATEGORY:

☒ Master's Thesis ☐ Project, Paper, Article ☐ Doctoral Dissertation

THESIS ADVISOR Dr. Peter Oberlander

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The study investigates the effectiveness of neighbourhood traffic management in achieving a balance between two competing objectives: the operational efficiency of the transportation system, and its responsiveness to traffic externalities. Its role in creating environmental areas, defining environmental capacities and providing an arterial network is studied, as is the relationship between traffic and land use. The importance of an efficient transportation system and livable residential areas, combined with the increasing use of neighbourhood traffic management suggests that the effectiveness of neighbourhood traffic management planning in addressing neighbourhood livability issues and its effects on the transportation system is an important urban concern.

Three Vancouver neighbourhoods with neighbourhood traffic management plans implemented between 1979 and 1982, Shaughnessy, Vancouver Heights, and the West End, serve as case studies. The effectiveness of the neighbourhood traffic management planning process in addressing neighbourhood concerns is measured by determining the perceptions of the group advocating the plan with respect to the process and the plan, and by determining how well this group represents the neighbourhood. Indicators of representativeness used include: descriptive, substantive, geographic and process. Determining the effectiveness of the neighbourhood traffic management plans in reducing traffic volumes within the neighbourhoods is achieved by analysis of before and after traffic counts. With regard to the effects of the implemented plan on operational efficiency, the study looks at traffic volumes at nearby arterial intersections and the presence of arterial improvements made in conjunction with the neighbourhood traffic management plan.

The study findings indicate that the group advocating the neighbourhood traffic management plan is representative of the area and that the planning process identifies and responds to the concerns of the area residents. However, the implementation of the neighbourhood traffic plans falls short of meeting residents' needs, due to the design of the devices or the timing of the implementation. The study findings on the effects of the plan on the operational efficiency of the transportation system are not conclusive, but suggest no major impacts.

The study concludes that the neighbourhood traffic management process should be improved by formalizing the role of neighbourhood traffic planning, thereby giving legitmacy to both citizen participation and the plans produced. In addition, the adoption of an environmental area policy emphasizing the protection of residential neighbourhoods will ensure that plans are implemented as intended. The study also concludes that an optimal balance between efficiency of the transportation system and environmental quality can only be achieved by the integration of neighbourhood traffic management planning, transportation planning and land use planning.

Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE Urban Open Space: The Effect of Objectives and Regulations

AUTHOR Barbara Pringle **DATE OF COMPLETION** May 1987

INSTITUTION University of British Columbia

DEPARTMENT / PROGRAM School of Community & Regional Planning

INDICATE APPROPRIATE CATEGORY:

☒ Master's Thesis ☐ Project, Paper, Article ☐ Doctoral Dissertation

THESIS ADVISOR Brahm Wiesman

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This thesis is focused on one component of the urban environment: open space, specifically open space in the downtown core. Taking the position that supplying adequate and appropriate open space is an important civic responsibility, the thesis investigates the proposition that such open space can be created through the combined effect of urban open space objectives and urban regulations.

The proposition is investigated in three parts. First, the influence of urban regulations on urban open space development is examined. The regulatory histories of New York's, San Francisco's and Vancouver's downtown cores are reviewed to identify regulations that have influenced open space. Most attention is given to Vancouver's regulatory history and urban development patterns. In general, the investigation revealed that, while San Francisco defined what constitutes adequate and appropriate urban open space, New York and Vancouver did not. Because of this lack of definition the regulations continued to be developed in response to immediate situations rather than in response to open space objectives.

The second part uses the historic shifts in the understanding of open space to identify four fundamental objectives for the development of adequate and appropriate urban open space. The objectives are: open space for public use; open space to shape the urban environment; open space to improve environmental quality; and open space as a network.

The third part compares the regulations, identified as influencing open space, with the proposed objectives. This comparison determines how effectively the regulations achieve the objectives. Finally, a decision-making process is outlined that would enable the narrow and effective actions of the regulations to achieve the broad objectives identified for urban open space.

The thesis concludes that through the combined effect of urban open space objectives and urban regulations, cities can define adequate and appropriate open space and influence development to create such spaces.

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INTERNATIONAL EE

Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE A Communication Model to Produce Slide-Tape Sets for Extension Activity Among Low-income Farmers in Guatemala, Central America

AUTHOR Joseph L. Digranes **DATE OF COMPLETION** 15 June 1987

INSTITUTION State University of New York, Syracuse, New York

DEPARTMENT / PROGRAM Faculty of Forestry

INDICATE APPROPRIATE CATEGORY:

☒ Master's Thesis ☐ Project, Paper, Article ☐ Doctoral Dissertation

THESIS ADVISOR Dr. Norman Richards and Dr. Janis Petricoks

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This project considers the role of slide-tape sets as a means to create awareness among semi-literate, low-income farmers in less developed countries of practices to improve their standard of living. Among visual literates, slide-tape sets are an effective means to arouse interest and to initiate action. Nevertheless, because the production and use of this media is dependent upon non-local resources emphasis should be placed on developing traditional media. Two sets of pre-production scripts for slide-tape production are included. One set promotes live fences. The other set promotes dead barriers and live barriers. Both sets are designed to be implemented among the ladino population in the eastern region of Guatemala. Typed and bound project 176 pages, 3 figures, 1987.

Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE Environmental Education for Swaziland Secondary Schools

AUTHOR Linda Braun, Carmelita McGurk, Concelia Ntshalintshali **DATE OF COMPLETION** 1987

INSTITUTION University of Michigan

DEPARTMENT / PROGRAM School of Natural Resources

INDICATE APPROPRIATE CATEGORY:

☒ Master's Thesis ☐ Project, Paper, Article ☐ Doctoral Dissertation

THESIS ADVISOR Dr. William B. Stapp and Dr. Paul F. Nowak

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Environmental education is a growing concern to governments around the world. Among many administrators and teachers in Swaziland, environmental education has been recognized as a way to increase the citizens' awareness, knowledge, concern and commitment to the country's well being. Swaziland today is largely a rural society, but as the end of the twentieth century approaches, population pressures and economic incentives will draw a larger proportion of the population toward urban settlements. This trend involves a whole new set of environmental issues; even today there are many environmental problems which are of serious concern.

Fostering a strong commitment to environmental education as soon as possible is critical to helping people develop the knowledge, attitudes and skills needed to deal with these increasing issues.

The goal of this thesis is to collect, summarize and analyze information that can be used to develop, implement and evaluate an environmental education program for Swaziland secondary schools. Specific objectives included: 1) Provide a Needs Assessment: select target group(s), discuss philosophy and goals of environmental education, determine current environmental education within the curriculum, identify community and agency resources, and report environmental issues to be addressed. 2) Provide a Literature Review. 3) Develop Recommendations.

In order for this program to be implemented successfully and widely adopted, it is critical that decision makers, environmental specialists and members from the general public cooperate and participate in the planning of the program.

Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE A Proposed Methodology for Interpretive Planning in the National Parks and Similar Areas of Ecuador

AUTHOR Jaime R. Enríquez DATE OF COMPLETION May, 1987

INSTITUTION University of Idaho

DEPARTMENT / PROGRAM Wildland Recreation Management

INDICATE APPROPRIATE CATEGORY:

☒ Master's Thesis ☐ Project, Paper, Article ☐ Doctoral Dissertation

THESIS ADVISOR Dr. Sam H. Ham

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This paper contains a proposed process for planning interpretive programs in the national parks and similar areas of Ecuador. Development of interpretive programs is mandated by agency policy and existing management plans but, to date, little progress has been made except in a few areas. Outside of Galápagos National Park, systematic efforts toward interpretation do not exist.

The purpose of this paper is to describe a process for planning interpretive programs aimed at augmenting area interpretive programs. A number of approaches applied in the United States and Canada were reviewed initially for their applicability to Ecuador's needs and capabilities. From this review emerged the proposed planning process which is felt to be most suitable to Ecuador. The process includes 5 major steps: (I) Formation of the Planning Team, (II) Interpretive Inventory, (III) Preparation of the Plan, (IV) Analysis of Implementation Requirements, and (V) Monitoring and Evaluation.

Each of the 5 planning steps is presented in detail to anticipate the planning needs of even the most complex situation. Realistically, however, most of Ecuador's natural areas will require less detail than is provided in this document. In such cases, it will be these areas' attention to the planning steps, not all of their subordinate details, that will be most important.

Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE The Potential Role of Environmental Education in Central America: Confronting the Realities of the Region

AUTHOR Melissa MacKenzie and Cynthia Hypki **DATE OF COMPLETION** May 1987

INSTITUTION University of Michigan

DEPARTMENT / PROGRAM School of Natural Resources/Management, Policy and Planning Program

INDICATE APPROPRIATE CATEGORY:

☒ Master's Thesis ☐ Project, Paper, Article ☐ Doctoral Dissertation

THESIS ADVISOR Drs. William Stapp, Barry Checkoway and Barbara Israel

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The conflict between conservation and development interests, as it relates to the practice of environmental education, is the subject of a recently completed Master's thesis entitled: "The Potential Role of Environmental Education in Central America: Confronting the Realities of the Region". The authors worked with conservation agencies in Costa Rica from 1981-84 as environmental education specialists; Melissa MacKenzie with the private, non-profit, Costa Rican Association for the Conservation of Nature (ASCONA), and Cynthia (Cinder) Hypki with the Costa Rican National Park Service. The paper is based on their own observations, discussions with Costa Rican colleagues and other Central American environmentalists with whom they worked, as well as their subsequent research at the University of Michigan School of Natural Resources.

The ultimate goal of the thesis is to stimulate much needed debate regarding the role of environmental education in natural resource conservation and development efforts in Central America. This will be facilitated by a synthesized, translated version of the work which will soon be distributed to natural resource conservation and development agencies/practitioners throughout Central America.

In Costa Rica, the authors observed that while environmental education efforts served to increase public awareness of and concern about the country's existing environmental problems, they failed to stimulate significant action by community members towards solutions at a local level, or participation in natural resource conservation efforts. Their analysis of the problem integrates a broad range of factors. These include the historical context of development and conservation in the region, the failure of imposed U.S. models, and the limitations and problems faced by natural resource conservation agencies.

The authors conclude that a new role for environmental education must be brought about in a process which, of necessity, must include the development of new, culturally adapted models, created by and for citizens of the region. Such models would allow environmental educators to work with community members in problems of local concern, in regard to both conservation and development. This role would help reconcile the concern for short term basic needs fulfillment, on the one hand, and long term sustainable use of natural resources on the other.

"Environmental education cannot operate in a vacuum, separate from the political history and current reality of Central America, and the resulting forces acting upon its populations. Environmental education efforts will continue to be ineffective unless they contribute to significant social change that succeeds in meeting people's basic needs. There is nothing less at stake than the quality of human life and the natural environment upon which it depends."

ADMINISTRATION AND OTHER EE RELATED STUDIES

Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE An Alternative Approach to Regional Planning: A Carrying-capacity Framework for Achieving a Viable Region

AUTHOR Yuichi Inoue **DATE OF COMPLETION** May 1987

INSTITUTION University of British Columbia

DEPARTMENT / PROGRAM School of Community & Regional Planning

INDICATE APPROPRIATE CATEGORY:

☒ Master's Thesis ☐ Project, Paper, Article ☐ Doctoral Dissertation

THESIS ADVISOR Dr. William E. Rees

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The purpose of this thesis is to develop an alternative approach to regional planning based on the concept of carrying capacity.

I assume that the relationship between human society and its ecological resource base has substantially changed because of the unprecedented economic expansion subsidized by fossil fuel and consequently we can no longer behave as if the natural environment had unlimited capability to accommodate human activity. In this situation, in order to ensure the long-term welfare of regional residents, it is necessary to improve the viability of a region by restructuring its economy in such a way as to promote regional economic self-reliance and ensure sensible natural resource management. Efforts should be made to achieve a self-reliant economy using regional resources on a sustainable basis. The concept of carrying capacity, which is an explicit representation of limits to growth, can provide a valuable framework for these efforts. I propose a conceptual framework of carrying capacity, where four variables are incorporated. They are (1) natural capability, (2) human intervention, (3) material standard of living, and (4) interregional transfer of commodities.

The exploration of this alternative approach to regional planning involves four steps. First, I examine the present nature-human relationship paying special attention to the prevailing assumption about the natural environment and the role of fossil fuel in industrial society. Second, I consider what the viability of a regional economy is and how it can be improved under the circumstances clarified in the preceding step. Third, I examine the meaning of carrying capacity criticizing the existing applications, and develop a carrying-capacity framework that can help achieve a viable region. Fourth, I describe how the proposed framework can be applied to the efforts to design a mode of production and consumption that is compatible with a viable region.

Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE Drilling Sour Gas Wells, Risk Management Alternatives For Northeast Calgary, Alberta

AUTHOR Robert Ross **DATE OF COMPLETION** May 1986

INSTITUTION University of British Columbia

DEPARTMENT / PROGRAM School of Community & Regional Planning

INDICATE APPROPRIATE CATEGORY:

☒ Master's Thesis ☐ Project, Paper, Article ☐ Doctoral Dissertation

THESIS ADVISOR Norman Dale

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There is a growing public awareness of and opposition to the risks associated with the operation of hazardous industrial facilities near populated areas. Public concern escalates when the industrial activity possesses the potential for catastrophic consequences should a major accident occur. This study examines the risk of drilling a toxic, natural sour gas well near northeast Calgary, Alberta. The sour gas problem is indicative of the difficulites of finding socially acceptable solutions to such risky activities.

The sour gas industry in Alberta has been successfully drilling for sour gas reserves for over sixty years. Although there has never been a public death in the province as a direct result of exposure to the lethal hydrogen sulphide component of sour gas, recent uncontrolled accidental releases, or "blowouts", at sour gas wells have caused the public in Alberta to view the risks of drilling for the toxic reserves near residential communities as too big to take. Because of the complexity and enormous array of uncertainties in predicting the likelihood and severity of a sour gas well blowout, the Energy Resources Conservation Board as the regulator and manager of Alberta's oil and gas industry is confronted with widely divergent opinions of the danger of drilling sour gas wells.

A risk management interpretation of the sour gas problem assumes a holistic approach, and utilizes knowledge - in depth, case specific information to help understand the uncertainties, the difficulties and implications of successfully drilling sour gas wells near urban centres. The main objective of this study, therefore, is to suggest alternatives to the manner in which sour gas wells are currently examined, regulated, drilled and managed in Alberta.

The risk management study begins by examining how the land use conflict between urban development and sour gas development materialized.

By understanding the uncertainties of safely drilling sour gas wells, especially with regard to the vital role that human error can play in contributing to a well-control problem, the inadequacy of a technical solution to risky problems is emphasized.

Upon an extensive review of the literature relevant to risk research, the limitations of a quantitative, probabilistic approach to understand risky activities like drilling sour gas wells is outlined.

Crucial to the risk management process is the need to recognize the legitimacy of the public's perceptions, concerns and fears of risks and to more readily include the public in discussions of the risks. Unless the public's point of view is understood, the principal difficulty of managing risky disputes, reconciling different opinions of the risks, will remain very prominent.

The sour gas industry in Alberta is at a critical point of development. The current sour gas proposal possesses the potential to represent the precedent for the manner in which the risks of sour gas will be managed.

The examination of this problem presents an opportunity to learn about the technical, moral, economic, social and psychological implications of operating hazardous industrial activities near residential communities. Unfortunately, this thesis has concluded that those involved in the sour gas problem have a great deal of catching up to do to assume a place in the classroom of understanding a holistic interpretation of the risks of sour gas.

Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE The Efficacy of the World Heritage Convention as a Planning Tool for the Rigorous Protection of Natural Sites

AUTHOR Barbara Fraser **DATE OF COMPLETION** May 1986

INSTITUTION University of British Columbia

DEPARTMENT / PROGRAM School of Community & Regional Planning

INDICATE APPROPRIATE CATEGORY:

☒ Master's Thesis ☐ Project, Paper, Article ☐ Doctoral Dissertation

THESIS ADVISOR Norman Dale

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People interested in the protection of some areas of land from consumptive use and/or resource extraction have been concerned in recent years because few new areas have been set aside under the protection methods available. As well, even land which has been designated for protection is being threatened with reductions in the strength of that protection so as to permit extensive resource use. The need arose for an administrative method to ensure the long-term, rigorous protection of land. The purpose of the thesis is to evaluate the efficacy of one method which professes to offer rigorous protection, that is, the World Heritage Convention, in relation to the Canadian Rockies region.

The World Heritage Convention is a multilateral, international convention which provides international recognition of universally significant natural and cultural heritage, and has been administered under Unesco's auspices since its signing in 1972. Each nation party to the Convention retains sovereignty over World Heritage Sites in their territory, but they are obliged to ensure adequate long-term protection.

The Rockies region is currently subject to numerous resource threats, including issues arising from the Four Mountain Parks planning process, the impact of coal, oil and gas development, and a change in the policy for resource management of the Eastern Slopes.

The Convention is evaluated against ten criteria which were derived from an examination of the rationales for land protection. Traditional criteria for the evaluation of decision making processes are rejected in favour of independently derived criteria because of an emphasis on the outcomes of resource management decision making, rather than on the processes. The criteria are broadly categorized as including the types of permitted activities, the inclusiveness of the purpose(s) for which the site is designated, the strength of protection, and its implementability.

The use of the World Heritage Convention in the Gordon-Upon-Franklin River dam development threat by Tasmania, Australia, is characterized as an example of how the World Heritage Convention may be used to focus domestic and international attention and opprobrium for threatened areas. On the basis of this study several conclusions can be drawn regarding the World Heritage Convention's efficacy in enhancing rigorous protection of the Canadian Rockies. Although the Convention permits some resource extraction and motorized recreation and lacks a formal monitoring procedure, it is concluded that it offers more advantages than disadvantages. The advantages include the conferral of prestige and international recognition on the nation and site nominated, a reduced susceptibility to political/financial expediency, the presence of informal monitoring of site quality by the IUCN, and the ultimate leverage (and the resulting political ramifications) of delisting for ensuring the ongoing, durable, protection of definable sites. Additional positive features of participation at the international level are also important for developed countries like Canada: principally this refers to suasion and leverage in the third world for protection of globally significant biomes (e.g., tropical rainforests).

Environmental Education / Communication
Project or Thesis Report Form

North American Association for Environmental Education

TITLE Policies to Mitigate the Social Problems Caused by the Tourist Industry: Application to Penticton, B.C.

AUTHOR David Anderson **DATE OF COMPLETION** May 1987

INSTITUTION University of British Columbia

DEPARTMENT / PROGRAM School of Community & Regional Planning

INDICATE APPROPRIATE CATEGORY:

☒ Master's Thesis ☐ Project, Paper, Article ☐ Doctoral Dissertation

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Tourism has excellent potential for further development in the provincial, national and world economies. However, tourist activity has the potential to be a socially disruptive force.

This thesis looks at the tourist industry and its benefits and costs. The literature makes it clear that there are social costs involved in tourism and also social limits to tourism development. A guideline for evaluating the social performance of tourism development is presented in Chapter 2.

The reason for studying the tourist industry, and the problems associated with it, is to develop policies to mitigate the social problems. Before policies can be developed, it must be established that such problems exist and that there is a time when these problems become critical.

The concept of saturation is examined in this study as a method for gauging when the critical point has been reached. It is not necessary in this thesis to operationalize or adopt "saturation" planning as a method of tourism planning.

Chapter 3 defines "saturation". It is the level of tourism activity affecting an area's facilities, services, and environment, where the residents in general feel that any further increase in tourist numbers and tourist-related development would be undesirable. The saturation level is the limit of local tolerance to tourism.

Since the measurement of saturation found in the literature is unsatisfactory, vague, and immeasurable, this study will use indicators that show capacity is being approached. These indicators will be based on the "Questions for Evaluating the Social Performance of Tourism Development" in Chapter 2 and on a review of the specific areas of concern which Young (1973) thought led to "psychological saturation" of residents.

Chapter 4 discusses policies from the literature for mitigating the adverse social effects of tourism. This includes problems of inadequate facilities and services, problems of undesirable environmental characteristics, policies to increase public acceptance of tourism, and policies to attract or expand tourism.

Once these general strategies have been listed, they are applied to the specific example of Penticton. Penticton has had a lengthy history as a tourist destination and today the tourist industry is the mainstay of the local economy. The major prospect for future economic development in Penticton is the further expansion of a year-round tourist trade. Yet, by examining the factors listed by Young (1973) leading to saturation, and reviewing the list of questions from Chapter 2, it would appear Penticton is approaching saturation.

Chapter 6 employs the strategies developed in Chapter 4 to the situation in Penticton. The policies for Penticton include: the addition of extra services and facilities to service a much larger population during tourist seasons; improvement of beach areas; separation of tourist areas and development from the mainstream of the city; better aesthetic standards in building architecture; public relations programs to convince residents that tourism is beneficial to them and their city; more public input at all planning stages for tourism policy and development; special projects funded by tourism revenue; greater expansion of the tourist season into the fall, winter, and spring months to better utilize existing facilities and gain wider acceptance of the industry as a year-round job producer.

There has been an implicit assumption that the ends of tourists and inventors are more important than public welfare. Recently, various forces have been acting to place increasing importance on environmental goals instead of strictly economic goals. If future tourism development is to be both economically and socially viable, it must be intentionally planned.

Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE The Politics and Science of Environmental Protection: The Case of Forestry-Ungulate Management in the Nimpkish Watershed on VanCouver Island, B.C.

AUTHOR Karl Sturmanis **DATE OF COMPLETION** May 1986

INSTITUTION University of British Columbia

DEPARTMENT / PROGRAM School of Community and Regional Planning

INDICATE APPROPRIATE CATEGORY:

☒ Master's Thesis ☐ Project, Paper, Article ☐ Doctoral Dissertation

THESIS ADVISOR Norman Dale

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Over the last two decades wildlife management in British Columbia has experienced forest uses which have forced wildlife into an ever shrinking island of survival. What is needed from a resource planner's point of view is a means of elevating and sustaining public concern in the issue of forestry-wildlife management and to ensure that an appropriate management program to protect critical ungulate habitat is designed and implemented by resource managers.

Lord Eric Ashby has proposed a model that describes the components necessary for successful political action in protecting environmental values, namely: an aroused public conscience, a feasible technology of protection, an objective and disinterested assessment of the hazard to the environment, and an effective tool for administration. Ashby argues that each component is a step of a process and that each is necessary to act as a catalyst for the succeeding steps, resulting ultimately in the implementation of a political decision. Ashby's model is used to analyze forestry-ungulate management in the Nimpkish watershed. It was chosen as a case study as it has an emerging forestry-ungulate management program and because of the considerable public interest.

The Tsitika Integrated Resource Plan is also compared. Of special interest is the design of the public consultation program and the melding of the scientific data with the issues and aspirations of the different interested publics and industry.

The Nimpkish reveals that Ashby's first component of an arousal of public conscience has occurred although it has been somewhat fractured and erratic. However, convergence of some of the interests has created sufficient pressure for the government to analyze the situation and to commit itself to make a policy decision on the issue of habitat reservation for ungulates.

Ashby's second component of scientific assessment and prescription of appropriate management action is fulfilled, but only at the technical level. There still remains some difficulty with regard to the assignment of monetary value to intangible resource values such as wildlife.

The third component, an effective tool for administration, has not been totally satisfied. While there is substantial co-operation and collaboration at the operational level between the ministries of Forests and Environment, a serious inertia remains at the senior policy decision-making level.

Some possible approaches that could alleviate the Nimpkish situation and others like it include a strengthening of legislation to help facilitate inter-agency resource planning. The public could also be better informed regarding resource conflict issues and thus be better prepared for the consultative stages of the planning process. There appears to be a strong public reaction against the use of benefit-cost analysis in determining value for intangibles such as wildlife protection. Finally, there is a need to create situations where politicians are comfortable in making policy decisions regarding resource use conflicts. One approach would be the encouragement of incremental decisions that lead eventually to a broader policy position in favour of protection of wildlife habitat. Another approach is to blend scientific and non-scientific views as occurred in the Tsitika Integrated Plan. While the Tsitika experience may not appear to alter present modes of decision-making significantly, it is possible that prolonged exposure to the process may indeed alter the manner in which resource conflicts are resolved - hopefully in favour of a more balanced approach to resource use where conservation holds equal value with exploitation.

Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE Revenue Recovery Strategies for the Alaska Public Use Cabin Program

AUTHOR Kevin Keeler **DATE OF COMPLETION** May 1987

INSTITUTION University of British Columbia

DEPARTMENT / PROGRAM School of Community & Regional Planning

INDICATE APPROPRIATE CATEGORY:

☒ Master's Thesis ☐ Project, Paper, Article ☐ Doctoral Dissertation

THESIS ADVISOR Dr. Henry C. Hightower

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This thesis evaluates a range of policy analysis techniques for application to an issue of policy choice. Divergent premises of two policy alternatives are defined and evaluated using policy impact analysis techniques.

The two policy alternatives concern revenue recovery for the Alaska Division of Parks and Outdoor Recreation public use cabin (PUC) program. The lack of a mechanism to recover revenues from program user fees is the primary constraint for the operation and development of the PUC program. The Division has proposed that the Alaska Legislature authorize the implementation of a program receipts policy. Because past legislative initiatives for program receipts have failed, Division staff have proposed implementation of a concessionaire strategy. This thesis determines which policy would ensure the continued operation and development of the PUC program.

Classification analysis is used to categorize the operational strengths and weaknesses of each policy, and agency influence over these characteristics. Assumptional analysis is used to define the divergent premises of policy makers. These premises are developed as scenarios of program operations within the framework of a structured policy debate. The impacts of the scenarios are forecast using policy impact analysis techniques, and recommendations are made for an optimum policy strategy.

A significant weakness of the program receipts policy is that it is uncertain whether it will be authorized by the Legislature. The failure of Legislative authorization is forecast to have significant mid-term impacts on the PUC program. The primary impact would be the deterioration of facilities; combined with further budget cutbacks, the Division may be forced to abandon the PUC program. Implementation of a concessions strategy would provide a viable alternative for program operations and development. Therefore, concessionaire operation is recommended as a contingency strategy to the program receipts policy.

The methods applied to this case study are useful for either the development of, or the critical evaluation of policy directives. The techniques of assumptional analysis or the structured policy debate can be used to identify the assumptions and premises of policy makers. The structured policy debate also provides a means to check the logic of a policy argument. Policy impact analysis provides a means of forecasting or measuring the outcome of implementation. Taken together, the techniques provide for a normative evaluation of issues of policy choice.

Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE Review of Yahara Watershed Lakes

AUTHOR 15 Water Resources Management Graduate Students **DATE OF COMPLETION** August 1987

INSTITUTION University of Wisconsin - Madison

DEPARTMENT / PROGRAM Water Resources Management Program, Institute for Environmental Studies

INDICATE APPROPRIATE CATEGORY:

☒ Master's Thesis ☐ Project, Paper, Article ☐ Doctoral Dissertation

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A review of past efforts to improve the condition of the Yahara watershed lakes near Madison, Wisconsin, revealed that, despite much research and many excellent management recommendations, water quality problems persist. From a broad array of project options, participants in the 1987 Water Resources Management Workshop at the University of Wisconsin-Madison chose to assess the needs and possible directions for citizen awareness and education in the watershed - a seemingly deficient component of lake management efforts to date. The following tools for enhancing public awareness were produced during the workshop:

1) An informational guide explaining fundamental lake and watershed concepts and their relationships.

2) A slide/tape program examining the effects of land use activities and the role of individual citizens in water quality management.

3) A middle school curriculum including lesson plans and activities which emphasize lake/watershed dynamics and problems.

4) A written proposal calling for the establishment of a Yahara Lakes Resources Education Center to provide long-term public education.

5) A summary of the planning process which led to the finding of need for public awareness and an assessment of ways to meet that need.

Follow-up efforts and distribution of these products has been designed to maximize the opportunity for their long-term use in the watershed.

Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE A Study of the Environmental Education Activities of the Conservation Districts of Pennsylvania

AUTHOR Harry T. Hoover **DATE OF COMPLETION** 1986

INSTITUTION The Pennsylvania State University

DEPARTMENT / PROGRAM Department of Recreation and Parks

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☒ Master's Thesis ☐ Project, Paper, Article ☐ Doctoral Dissertation

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The purpose of this study was to develop an information base to aid in planning future Pennsylvania Conservation District environmental education programs. The 67 districts were surveyed regarding the magnitude of environmental education program activities sponsored during 1984, and the relative importance rating of the activities by district personnel. Demographic and budgetary information was gathered from public record. The research questions addressed the description of activity magnitudes and importance ratings. The hypotheses were concerned with the relationships among variables. Although the hypotheses were not rejected, statistically significant relationships were found for four activities in relation to the reported magnitude and relative importance ratings: field trips/tours, outdoor site/facility utilization, field meets, and staff inservice/training. Significant relationships were also found between the reported magnitude/importance of environmental education activities and the demographic and budgetary characteristics of the districts. Seven of the 20 magnitude/importance variables were related to from one to three of the following characteristics: total budget, environmental education budget, population density, per capita income, environmental education staff size, or environmental education budget per capita.

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GRADUATE PROGRAMS IN ENVIRONMENTAL EDUCATION AND COMMUNICATIONS

This is the tenth volume of Recent Graduate Works to include descriptions of graduate programs in environmental education and environmental communications. Each year our listing has grown--reflecting, we feel, the importance of this reference to individuals working in the field.

Program information is requested from all institutions contacted for thesis and dissertation abstracts. The information provided by the institutions is reproduced here exactly as it was reported.

The programs are listed alphabetically by state and then by institution. The information is organized in the following manner:

Name of the Institution
Division offering the program — Name of the person to
Title of the program — contact for more information
(Degrees offered)

A brief description of the program.

We wish to thank all those who contributed information on their graduate programs.

ARIZONA

University of Arizona

School of Renewable Natural Resources
Renewable Natural Resources
(B.S., M.S., Ph.D.)

William W. Shaw
SRNR, 325 Bio. Sci. East
University of Arizona
Tucson, AZ 85721

Coursework and graduate studies are available involving interpretation, education and communication as it pertains to the management of natural resources.

CALIFORNIA

California State University, Hayward

Department of Teacher Education
Master OF Science in curriculum with Specialization E.E.
(M.S.)

Esther P. Railton
Dept. of Teacher Education
Cal. State U., Hayward
Hayward, CA 94542

The program for teachers, naturalists and outdoor recreation leaders includes one-third foundations courses, one-third environmental education, and one-third electives. The specialization may be combined with methods in teaching science. A special master's degree in environmental education can be tailor-made for an individual.

The environmental education courses illustrate the webbing of environmental concepts, attitudes and action into all school subjects. All courses are presented through active, direct experience, and group discussion.

Humboldt State University

Department of Education
Master of Arts in Education:
Special Studies Env. Education

Dr. Alan Leftridge
Environmental Ed. Coord.
Department of Education
Humboldt State University
Arcata, CA 95521

The focus is to help students become proficient with the methods of promoting environmental awareness. The degree is directed at students interested in developing ways of sharing their concern for their environments with certain audiences utilizing various educational and interpretive techniques. Degree may be obtained without possession of a teaching credential.

Stanford University
Department of Communications
(M.A., Ph.D.)

William Paisley, Assoc. Prof.
Department of Communications
Stanford University
Stanford, CA 94305

Students in the M.A. programs focusing on Journalism, Film, Broadcasting, or Communication Media and Social Change, as well as students in the Ph.D. program in Communication Research can elect to conduct thesis research on problems of environmental communication such as the flow of environmental information to the public and to policy-makers. Alternatively, students may participate in the design of information systems or campaigns to improve the flow of environmental information.

COLORADO

Colorado State University
College of Forestry and Natural Resources--Dept. of Education
Conservation Education
(M.Ed., M.S., Ph.D.)

Dr. Charles L. Mahoney
Prof. of Resource Conservation
Dept. of Recreation Resources
Colorado State University
Fort Collins, CO 80523

Graduate Programs lead to the Master of Education, Master of Science and Doctor of Philosophy degrees. The Conservation Education program prepares students to become teachers at the junior high and secondary levels. Emphasis at the graduate level is on furthering knowledge of natural resources conservation and management, developing more effective teaching techniques and innovative instructional programs.

CONNECTICUT

Lesley College/National Audubon Society Expedition Institute
Division of Outreach & Alternative Education
Lesley/Audubon Environmental Education Program
M.S. Environmental Education

Libby Sciacchitano
National Audubon Society
Expedition Institute
Sharon, CT 06069

Sharlene Cochrane
Lesley College Grad. School
29 Everett Street
Cambridge, MA 02238
617/868-9600

Teaches deep ecology skills experientially in a two year close-knit traveling expedition community; a practical firsthand, nationwide examination of people, places and issues that leads to interpretive, outdoor, counseling, cross-cultural and academic competencies; an M.S. degree; postgraduate grants; internships; graduate assistantships; and environmental careers with National Audubon Society Expedition Institute affiliates.

DELAWARE

University of Delaware
College of Education
Educational Development
Environmental Education; Science Ed.
(M.Ed., Ed.D.)

Dr. Les Picker
College of Education
University of Delaware
Newark, DE 19711

This is a flexible program, designed to meet the employment needs of those entering the field of environmental education and/or science education. Teacher certification is required for entrance.

FLORIDA

Florida State University
Department of Curriculum & Instruction
Science Education (M.S. Ed.)
Social Studies Education (M.S. Ed.)

Dr. Rodney F. Allen, Professor
Social Studies Education

Dr. Ronald M. Good, Professor
Science Education

205 Stone Bldg.
Florida State University
Tallahassee, FL 32306
904/644-6553

No specific program in environmental education is offered; however, master's candidates in science and social studies education may develop a program of studies with that focus. Students are encouraged to do so.

GEORGIA

University of Georgia
College of Education
Adult Education (M.A.)
Science Education (M.A.)
Social Science Education (Ed.S.)
Recreation & Leisure Studies (Ed.D.)

Prof. R. N. Saveland
203 Dudley Hall
University of Georgia
Athens, GA 30602

Franklin College of Arts & Sciences
Geography Department (Ph.D.)

School of Environmental Design
Landscape Architecture (BLA, MLA)

School of Forestry

Institute of Ecology

No description of programs available.

HAWAII

University of Hawaii at Manoa
Dept. of Educational Foundations
Emphasis in Environmental Education
(Masters, Ed.D.)

Chairman, Graduate Field
Dept. of Ed. Foundations
University of Hawaii
West Annex 2, Room 222
1776 University Ave.
Honolulu, HI 96822

The department has several areas of emphasis, one of which is environmental education. The program works in conjunction with the Environmental Studies Program in the University.

IDAHO

University of Idaho
Department of Wildland
Recreation Management
Interpretation and Natural
Resource Communication
(B.S., M.S., M.F., Ph.D.)

Dr. Sam Ham
Dept. of Wildland Recreation Mgmt.
College of Forestry, Wildlife,
& Range Sciences
University of Idaho
Moscow, ID 83843

Interpretation and natural resource communication is one of five specialty areas in the Department of Wildland Recreation Management. Graduates from this program work in national and state parks, forests, nature centers, wilderness areas, wildlife refuges, and on cruise ships traveling both domestic and international waters. River companies, outfitters and other tourism businesses increasingly employ students from this specialty area.

The program stresses natural and behavioral sciences with heavy emphasis on communication methods. At the undergraduate level, an 18-credit minor is used to supplement introductory and advanced courses in interpretive and environmental education methods. Graduate students pursue the MS, MF or Ph.D. degree through interdisciplinary studies designed by the student and his/her graduate committee.

ILLINOIS

George Williams College

Division of Leisure & Environmental Resources Administration
Environmental Education/Interpretive Services Administration
(M.S.)

Steve Van Matre
George Williams College
555 Thirty-first Street
Downers Grove, IL 60515-9960

The purpose of this concentration is to prepare leaders who can breathe freshness and vitality into peoples' appreciation and understanding of the world around them. The emphasis is on providing the skills necessary for effective motivation, communication, educational program development, organization, and administration. The program emphasizes the importance of sunlight, air, water, and soil as basic to any good environmental education or interpretive program. In the belief that lasting learning takes place when the learners are actively involved, the concentration is project-oriented. Whether one is interested in environmental education, natural or cultural interpretation, or a combination of all three areas, this program is designed to help the student become an effective leader in the field.

Northeastern Illinois University

College of Arts & Sciences
Dept. of Geography & Environmental Studies
Geography & Environmental Studies
(M.A.)

Karl A. Kriesel, Grad. Coordinator
Dept. of Geog. & Env. Studies
Northeastern Illinois University
5500 N. St. Louis
Chicago, IL 60625

Program is designed to provide advanced analysis of environmental and spatial systems. Included are ecological studies of human-environmental interrelations, studies of rapidly changing landscapes, locational studies concerning the geometrics of movement, size, shape and distance, and studies of environmental resources in terms of their interpretation, development and use. Urban land use planning sequence is also available.

Northern Illinois University

Lorado Taft Field Campus
Outdoor Teacher Education
(Ms. Ed.)

Dr. Clifford E. Knapp
Box 299
Oregon, IL 61061

The master's degree program in Outdoor Teacher Education consists of a minimum of 30 semester hours, 21 of which must be taken in outdoor-environmental education and 9 outside the area. Full-time students may complete the degree in one year. Thesis and non-thesis options are available as well as graduate assistantships and fellowships.

Northern Illinois University

College of Liberal Arts & Sciences
See description.
(M.S.)

Dr. Burley V. Bechdolt
Northern Illinois University
Department of Economics
Dekalb, IL 60115

The university offers M.S. degree programs in the following departments whose programs produce possibly significant graduate work on environmental topics: Biological Sciences (Ph.D. also); Geography (emphasis in Natural Environmental Systems, Urban Economics, and Meteorology); Geology; Economics (Ph.D. also); Chemistry (Ph.D. also); Physics; and Political Science (Ph.D. also).

Sangamon State University

Public Policy and Administration
Environmental Studies Program
(M.A.)

Alexander J. Casella, Ph.D.
Convener of Env. Studies Program
Sangamon State University
Springfield, IL 62708

The M.A. degree provides students with the knowledge and skills necessary to function effectively in today's environmental arenas. Students choose between a concentration in either Environmental Administration or Environmental Planning, with carefully structured curricula, or develop an Individualized Course of Studies in energy, bio-cultural education and interpretation and other related areas.

Southern Illinois University at Carbondale

Dept. of Curr., Instr. & Media
Science and/or Environmental Ed.
(M.S. Ed., Ph.D.)

Dr. Harold Hungerford
Dr. Trudi L. Volk
Dept. of C.I.M.
327 WHAM
Southern Illinois University
at Carbondale
Carbondale, IL 62901

Degrees are offered in curriculum and instruction with an emphasis in either science or environmental education or a combination. The Ph.D. ionvolves a minimum of 64 semester hours. The masters degree involves a minimum of 32 hours. A research emphasis exists for all graduate programs. Many opportunities also exist for internships, practicums and cognate courses outside the College of Education.

Southern Illinois University at Edwardsville

School of Science and Technology
M.S. in Environmental Studies

Frank Kulfinski, Coordinator
Box 1099
Southern Illinois University
at Edwardsville
Edwardsville, IL 62026-1099

The environmental studies program is interdisciplinary and leads to a Master of Science degree in Environmental Studies. General and Science options are available. The faculties of all departments are available for reference and instruction. Students select their own topics for research. Besides developing marketable skills in analysis and communication, the program attempts to cultivate broad perspectives on major environmental problems.

University of Illinois at Urbana-Champaign

Department of Forestry	T. J. Jacob
Ecological & Natural Resrouce Ed.	110 Mumford Hall
(M.S.)	1301 W. Gregory Drive
	Urbana, IL 61801

The graduate program in Ecological and Natural Resource Education is designed to train persons having an educational background to teach about ecology, natural resources and environmental issues or to further educate persons having a background in resources. Graduates of the program work in a wide variety of professional positions, ranging from resource managers to teachers.

INDIANA

Ball State University

Department of Natural Resources	Charles O. Mortenson, Chairman
College of Sciences & Humanities	Department of Natural Resources
Graduate in Natural Resources	Ball State University
(M.S., M.A.)	Muncie, IN 47306

The Department of Natural Resources, in the College of Sciences and Humanities, offers four focus areas at the master's-degree level, including Environmental Protection (solid and hazardous waste, water quality, ambient/indoor air quality), Resource Management and Environmental Policy (outdoor recreation and park management, land use and reclamation, soil resources, environmental systems analysis), Environmental Education and Communication (natural resource interpretation, public information and education, teacher certification in conservation and evnrionmental studies), and General Natural Resources and Environmental Science.

Indiana University

School of Public & Environmental Affairs	J. C. Randolph, Director
Environmental Programs	SPEA Environmental Programs
(MSES)	400 E. 7th
	Poplars 438
	Bloomington, IN 47401

Most of the environmental programs of Indiana University emphasize the application of environmental science to the policy-making process. The approach is solution-oriented. Most programs provide a basic background, with varying emphasis, on technical skills, applied science, and knowledge of the political process. Students become specialists in particular aspects of environment issues, yet have a broad perspective in terms of technical abilities and socioeconomic concerns.

Purdue University

Dept. Forestry & Natural Resources	Douglas M. Knudson
Outdoor Recreation	Dept. of Forestry
(M.S., Ph.D.)	W. Lafayette, IN 47907

Interpretation as part of recreation resource management is studied in terms of economic and sociological impacts.

IOWA

Iowa State University

1. Professional Studies in Education (M.S., M.Ed., Ph.D.)
2. General Graduate Studies (M.S., M.A.)

Dr. Thomas Tanner
141 Bessey Hall
Iowa State University
Ames, IA 50011
515/294-7252

In the following programs, whose numbers correspond to those above, there can be an emphasis on environmental education (EE), with EE faculty member as the major professor and EE as the topic of thesis or creative component. All programs are designed by student and major professor to meet the student's individual needs and interests.

1. M.Ed. (creative component), M.S. (thesis), Ph.D. Administered by the department's Curriculum and Instructional Technology section.

2. M.S., M.A. The program is divided among three areas chosen by the student, e.g., botany, child development, education. All three contribute, in complementary fashion, to the creative component or thesis.

KENTUCKY

Eastern Kentucky University

Dept. of Recreation & Park Administration
Recreation & Park Administration
(B.S., M.S.)

Dr. James McChesney
College of Health, Physical Education & Recreation
Dept. of Recreation & Park Administration
Begley 403
Eastern Kentucky University
Richmond, KY 40475

Degree in Recreation and Park Administration with opportunity to focus on outdoor/nature interpretation and recreation programs. No thesis requirement.

Murray State University

Dept. of Instruction & Learning
Education (emphasis Environmental Education)
(M.A.)

Dr. Terry L. Wilson, Director
Center for Environmental Ed.
Murray State University
Murray, KY 42071

Murray State University offers graduate degrees with major emphasis in Environmental Education. The programs are administered by the center for Environmental Education and are designed to provide students with both classroom and practical experience. The program emphasizes holistic and humanistic approaches to teaching and learning, which focus on human/earth relationships. TVA's nearby Land Between the Lakes, a 170,000 acre national demonstration in environmental education and recreation, serves as an extended campus for formal and non-formal environmental education programs.

LOUISIANA

McNeese State University
College of Science
Environmental Science
(M.S.)

Dr. Victor Monsour, Chairman
Dept. of Environmental Science
and Microbiology
McNeese State University
Lake Charles, LA 70609

This is a general program in environmental science. Thesis is optional. Total minimum semester hours for the degree with a thesis is 24; whereas, without a thesis, the minimum number of hours required is 36. Specialization comes via the thesis.

MARYLAND

The Johns Hopkins University
Dept. of Geography and
Environmental Engineering
(M.A., M.S.F., Ph.D.)

Dr. M. Gordon Wolman, Chairman
Dept. of Geography and
Environmental Engineering
The Johns Hopkins University
Baltimore, MD 21218

The program in geography and environmental engineering has three major facets: surficial earth processes, environmental engineering including systems analysis, and resources and human geography. The emphasis is upon research and teaching at the graduate level in problems crossing disciplinary lines. These include such areas as location of public facilities, regulatory mechanisms in resource management and pollution control, natural processes and their relation to human activities, and the impact of human activities on spatial location and cities. Environmental education and communication are not formal aspects of the curriculum, but closely related to the work and participation of students and faculty in education and environmental decision making.

University of Maryland, College Park
College of Agriculture
Environmental Education
(M.S.)

Dr. Jack Wheatley
Agricultural and Extension Ed.
Room 0200-Symons Hall
University of Maryland
College Park, MD 20742

This program provides expertise in content and methodology appropriate for outdoor education for school systems. Professional park naturalists also are attracted to the program due to this orientation. The program is cross-disciplinary, with students choosing courses from a number of areas, including biology, wildlife management, resource economics, education and geography.

MICHIGAN

Michigan State University
Department of Fisheries and Wildlife
Human Dimensions of F W Management
(M.S., Ph.D.)

Dr. R. Ben Peyton, Assoc. Prof.
Department of Fisheries
and Wildlife
Michigan State University
East Lansing, MI 48823

The graduate program serves interests ranging from formal EE to social aspects of F/W management. Course programs are designed by the student and graduate committee, but generally include courses in resource management education and research methods. Dept. of F/W offers unique opportunity to blend resource management content and EE methods.

University of Michigan
School of Natural Resources
Environmental Education,
Communication, and Advocacy
(M.S., Ph.D.)

Office of Academic Programs
School of Natural Resources
1024 Dana
The University of Michigan
430 E. University
Ann Arbor, MI 48019-1115

The study of environmental education, communication, and advocacy in the School is unique in its interdisciplinary approach to professional training and environmental problem-solving. Students develop expertise in the biophysical and technical aspects of natural resource and environmental issues as well as in the areas of environmental education, advocacy, and communication.

MONTANA

University of Montana
College of Arts and Sciences
Environmental Studies Program
(M.S.)

Thomas Roy, Director
Environmental Studies
Jeannette Rankin Hall
University of Montana
Missoula, MT 59812

Environmental Studies (EVST) is an interdisciplinary graduate program which was developed in response to the critical need for knowledgeable, active people who are prepared to deal with crucial environmental problems. The program accepts students from any discipline. Our concern is for analyzing and "solving" environmental problems; therefore, advocacy skills are developed.

NEW YORK

New York University

School of Education, Health,
Nursing & Arts Professions
Dept. of Cultural Foundations
Environmental Conservation Ed.
(M.A.)

Professor Tom Colwell
737 East Building
New York University
Washington Square
New York, NY 10003

Interdisciplinary Study of Major Environmental Issues. A wide range of elective courses from the many schools and divisions of the university in science and technology, media, social science and education are grouped around core courses and seminars in the philosophical and social issues of environmental problems.

State University of New York at Brockport

Dept. of Biological Sciences
Biological Sciences
(M.S.)

Dr. Joseph C. Makarewicz
Dept. of Biological Sciences
113 Lennon Hall
SUNY Brockport
Brockport, NY 14420

The Dept. of Biological Sciences offers two plans for the Masters of Science Degree in Biological Sciences: Plan I (a thesis program) or Plan II (independent research experience in lieu of thesis). The expertise and experience of 26 faculty members service about 30 graduate students in several areas of research. Approximately 13 faculty are active in environmentally oriented research and teaching. The Department is well-equipped with both conventional instruments and a number of unique facilities (e.g. artificial streams). Field equipment for aquatic and terrestrial ecology are available including four boats. The close proximity of the Finger Lakes Region, Lake Ontario, the Adirondack Park of New York, and the 500 acres at Fancher Campus of SUNY Brockport provide ample sites for ecological research. A new emphasis in aquaculture has been initiated with the construction of six aquaculture ponds and experimental laboratory raceways.

State University of New York at Cortland

Department of Recreation &
Leisure Studies
Recreation & Environmental
Interpretation
(M.S., M.S.E.)

Dr. Anderson B. Young, Chair
Dept. of Recreation and
Leisure Studies
P. O. Box 2000
State University College,
Cortland
Cortland, NY 13045

The Department offers numerous graduate and undergraduate programs in outdoor education, including concentrations in Recreation and Environmental Interpretation. Graduates frequently find employment in nature centers, state and national agencies, and school systems. Formal coursework is enhanced by a large practicum program and a 500 Outdoor Education Center in the Adirondacks.

State University of New York at Syracuse

College of Environmental Science & Forestry
Environmental Studies
Environmental Science
(M.S., Ph.D.)

Prof. David Hanselman
Env. Education/Communications
311 Marshall Hall
SUNY-ESF
Syracuse, NY 13210
315/470-6551

SUNY - CESF is upper division and graduate. M.S. and Ph.D. degrees in Environmental Education and Communication are pursued through interdisciplinary studies in the College's Graduate Program in Environmental Science. Each student, working with his/her major professor and commiteee, charts an individual program based on three criteria: depth in a subject area, breadth of educational experience, and synthesis of the components. Three options may be employed: thesis research or project, professional work experience (internship) or additional coursework. A thesis defense or competency examination is required. The College is adjacent to Syracuse University (a private institution) and through a unique contractual arrangement, GPES EE/C students have full access to the resources of both ESF and SU. Of particular strengths are the wide array of course offerings in environmental science (including the social sciences) and in public communications.

NORTH CAROLINA

Duke University

School of Forestry and Environmental Studies
(M.F., M.E.M., A.M., M.S., Ph.D.)

Dr. E. Garrett Martin
Director of Admissions
School of Forestry and Environmental Studies
Duke University
Durham, NC 27706

The school has four structured programs of study: Forest Resource Management, Resource Ecology, Water and Air Resources, Resource Economics and Policy. With faculty approval, students may devise areas of specialization within the structured programs or an individualized program to focus on environmental education and communication. Appropriate courses are offered on the Duke campus and at the neighboring University of North Carolina at Chapel Hill. Overall emphasis of the school is on resource management, problem analysis, and quantitative methods of decision making.

OHIO

Antioch University

Glen Helen Outdoor Education Center
Teacher/Naturalist Internships
no degree offered

Joan Horn, Director
Outdoor Education Center
1075 St. Rt. 343
Yellow Springs, OH 45387

Graduate students earn ten graduate credits going through five months of on-the-job training as naturalists, working with small groups of 5th-8th grade students who come by classes to our resident center. The facility is located in a 1,000-acre nature preserve owned by Antioch University.

Miami University

Institute of Environmental Sciences	Gene E. Willeke, Director
Master of Environmental Science	IES, Miami University
(M.En.)	Oxford, OH 45056

Two-year professional degree at Masters level. Students accepted from any academic discipline (sciences, arts, humanities). Fifteen areas of concentration that enable student to build on undergraduate strength. All students take core curriculum, area of concentration, and research (internship, practicum, or thesis). One area of concentration is environmental education. Entering class of about 25 per year with total of 60-70 students at any time.

Ohio State University

Environmental Communications	Dr. Robert Roth, Chairman
Environmental Education	Environmental Education
Environmental Interpretations	383 Kottman Hall
(B.S., M.S.)	2021 Coffey Road
	Columbus, OH 43210

Master's candidates may propose their own 45 hour thesis or 55 hour non-thesis program building on a 12 credit hour core of Natural Resources Courses. The anticipated course work must be discussed with the graduate advisor prior to acceptance. Courses may also be taken in other departments. Graduate Record Exam verbal and quantitative scores are required for admission.

Ohio State University

School of Natural Resources	Dr. Rosanne W. Fortner
Environmental Education	School of Natural Resources
Environmental Interpretation	2021 Coffey Road
Environmental Communications	Columbus, OH 43210
(M.S., Ph.D. [pending])	

Graduate students work closely with a faculty advisor to develop a unique program in support of individual career goals. A core of Natural Resources courses plus other selected courses prepare MS candidates for disseminating, evaluating and doing research related to environmental information transfer. Research and thesis are encouraged, with a non-thesis option also available. An interdepartmental Ph.D. program can be arranged.

University of Cincinnati

Curriculum & Instruction	Dr. Thaddeus W. Fowler
Environmental Education	Teachers College, #2
(M.Ed., Ed.D.)	University of Cincinnati
	Cincinnati, OH 45221

Individualized program in environmental education with major emphasis on environmentalizing the classroom and using community resources. There is strong cooperation with the U.S. EPA and Cincinnati. A practicum is required.

OREGON

Southern Oregon State College
Graduate School--General Studies
M.S. General Studies: Outdoor Ed.
(M.S.)

Dr. Ronald D. Lamb
Biology Department S.O.S.C.
Ashland, OR 97520

The outdoor education program strives to develop leaders in conservation and outdoor education. The program gives the student a broad background in the sciences and the social sciences, and an understanding of the interrelationships of the ecological and economic aspects of conservation. Techniques of outdoor education are emphasized.

PENNSYLVANIA

The Pennsylvania State University
Department of Recreation and Parks
Recreation and Parks (RC PK)
(M.S., M.Ed., Ph.D.)

Dr. Herberta M. Lundegren
267 Recreation Building
The Pennsylvania State University
University Park, PA 16802

Prepares students for administrative, supervisory, research, and teaching positions in public and private recreation and park systems, in colleges and universities, in voluntary agencies and institutions, and in commercial and tourism-related ventures. The program is oriented to meet the specific needs and research interests of the candidate.

Slippery Rock University
Dept. Parks, Recreation,
and Environmental Education
Environmental Education
(B.S. in EE, M.Ed.)

Dr. Craig C. Chase
Dept. Parks, Recreation, and
Environmental Education
Slippery Rock, PA 16057

The graduate degree is designed to prepare program administrators with an expertise in EE programs, site-planning, and fund-raising, as well as field knowledge of environmental components encountered.

University of Pittsburgh
Teacher Development
Science Education
(M.Ed., Ed.D.)

Dr. Albert P. Nous
Assoc. Prof. of Science Ed.
4C12 Forbes Quadrangle
University of Pittsburgh
Pittsburgh, PA 15260

Master and doctoral level coursework is directed at the design of instructional resources, assessing the extent of cognitive growth of science concepts in young children and adolescents, uses of microcomputers in environmental simulations, and assessing needs of school and community interest groups. The improvement of science education in schools is the primary goal.

SOUTH CAROLINA

Clemson University
Dept. of Parks, Recreation and Tourism Management
Environmental Interpretation
(Master of Rec. & Parks Admin.)
(Master of Science)

H. Jesse Grove
263 Lehotsky Hall
Clemson University
Clemson, SC 29632

Students are prepared to function effectively as historic/natural site interpreters themselves, and/or to utilize the talents of staff interpreters in the role of a recreation and park administrator.

TENNESSEE

East Tennessee State University
School of Public & Allied Health
Environmental Health
(M.S.E.H., M.P.H.)

Dr. Monroe T. Morgan
Professor and Chairman
Department of Environmental Health
P.O. Box 22960A
East Tennessee State University
Johnson City, TN 37614-0002

Graduate education in environmental health is offered to prepare administrative and technical generalists for a variety of high level positions. Emphasis may include a variety of areas, such as epidemiology, water resources management, food sanitation, air pollution control, solid waste management, occupational safety and health, environmental analysis, and more.

TEXAS

Stephen F. Austin State University
School of Forestry
School of Education
Outdoor/Environmental Education
(B.S., M.S., D.F.)

Dr. Michael Legg
Box 6109 SFA Station
Nacogdoches, TX 75962

A strongly resource-oriented program that is cooperative between the Schools of Education and Forestry. Oriented toward preparing teachers for teaching in outdoor laboratories or nature centers.

Texas A & M University
Department of Recreation & Parks
Recreation & Resources Development (Interpretation)
(MAg., M.S., Ph.D.)

Dr. James H. Gramann
Dept. of Recreation & Parks
Texas A & M University
College Station, TX 77843-2261

The Interpretive Option identifies and provides research-based solutions to communication problems encountered by administrators, managers, practitioners, and educators. The focus is upon the utilization of interpretation as a resource management tool, and upon the communication of technical knowledge in resource management to lay audiences.

UTAH

University of Utah
Dept. of Communication
Communication
(M.A., M.S., Ph.D.)

Dr. Michael Pacanowsky,
Director of Graduate Studies
Dept. of Communication
University of Utah
Salt Lake City, Utah 84112

The department of communication at the University of Utah provides a broad-based theoretically oriented graduate program in communication studies. A primary area within the program is policy research and studies within a communication theory framework are strongly encouraged.

VERMONT

University of Vermont
School of Natural Resources
Natural Resources Planning (M.S.)

Dr. Thomas R. Hudspeth
Environmental Program
University of Vermont
153 S. Prospect
Burlington, VT 05401

The UVM School of Natural Resources offers a Master of Science degree in Natural Resource Planning. This interdisciplinary program deals with numerous topics in the broad areas of environment and natural resources. Students choose either a thesis option (30 semester hours of graduate level courses) or a project option (36 hours of graduate level courses). Course selection depends on the personal interests of the students, and varies considerably among participants in the program. Students work closely with their advisors and studies committee. Among possible concentrations or thrusts in the program are: (1) environmental education/interpretation/communication; (2) rural/town/regional planning; (3) recreation and tourism planning; (4) natural resource policy/law/administration; (5) natural resource economics; (6) integrated resource management; and (7) resource management information systems.

VIRGINIA

University of Virginia
Art and Sciences
Dept. of Environmental Sciences
(B.A., M.S., M.A., Ph.D.)

William E. Odum, Chairman
Dept. of Environmental Sciences
University of Virginia
Charlottesville, VA 22903

In 1969 the University of Virginia established an interdisciplinary program in environmental sciences to further the understanding of natural and human environments, to foster scientific analysis of environmental issues and problems, and to develop a rigorous academic program for students interested in a comprehensive approach to questions of environmental quality. The department attempts to educate two types of persons: (1) those who wish to acquire a broad, thorough understanding of basic environmental phenomena and processes, and (2) scientists who can make effective contributions to the fundamental knowledge of environmental systems.

Virginia Polytechnic Institute & State University

University Center Env. Studies
Environmental Studies
(M.S., Ph.D.)

Dr. John Cairns, Jr.
University Center
Environmental and Hazardous
Materials Studies
Virginia Polytechnic Institute
and State University
Blacksburg, VA 24601

The University Center for Environmental and Hazardous Materials Studies (UCES) was established in 1970 by the Board of Visitors as a component of the Virginia Tech Research Division. The Center is authorized to coordinate and focus University and sponsor resources on environmental and hazardous materials problems and concerns within Virginia and encourage the development of environmental information appropriate to worldwide application.

WASHINGTON

University of Washington

College of Education
C & I: Environmental Education
(M.Ed.)

Dr. Roger G. Olstad
201 Miller DQ-12
University of Washington
Seattle, WA 98195

A program intended for certificated teachers who wish to specialize in environmental education during Master's degree study. It combines work in environmental studies with education, and includes independent study options for students to explore areas of particular interest.

University of Washington

Institute for Environmental
Studies (FM-12)
"Interns in Environmental
Decisionmaking"
None

Ms. Vim Crane Wright
Asst. Director
Instit. for Env. Studies
University of Washington
Seattle, WA 98195

The "Interns in Environmental Decisionmaking" graduate program was established to train graduate students from a variety of departments in the social, natural and physical sciences to apply technical information in making policy decisions about complex environmental issues. The program involves two core courses ("Science and Environmental Policy: Theory" and "Case Studies"), a 4-18 month internship, and a summary paper.

Washington State University
College of Education, Science,
Agriculture, and Engineering
Environmental Science and
Regional Planning
(B.S., M.S., M.R.P.)

Dr. Eldon Franz
E. E. Coordinator
Program in Environmental Science
and Regional Planning
Washington State University
Pullman, WA 99164-4430

The program coordinates education in two closely related fields: environmental science and regional planning. The course of study for each student is flexibly designed in a unique, multi-optional interdisciplinary context. Majors specializing in Environmental Education are granted Senior High School teaching certificates with endorsements for the major and minors in physical and biological science.

Washington State University
Department of Sociology
Environmental Sociology
(M.A., Ph.D.)

Riley E. Dunlap
Department of Sociology
Washington State University
Pullman, WA 99164

The graduate program in Environmental Sociology is one of several areas of specialization in the Department. Available courses include environmental sociology, social impact assessment, energy and society, human ecology and demography, as well as relevant courses in other departments. Students may take an applied or a more theoretical approach for their comprehensive exams and theses.

WEST VIRGINIA

West Virginia University
Division of Forestry
Environmental Concerns
and Interpretation
(M.S.)

Dr. Gene Bammel
325 Percival Hall
West Virginia University
P.O. Box 6125
Morgantown, WV 26506-6125

W.V.U. offers a graduate program in Environmental Education and Interpretation preparing the graduate for a career in Environmental Education, Administration or Policy Analysis. Course work is complemented either by a thesis or by a research problem. Unobtrusive measures of research have been emphasized; federal, state, and private facilities have been research opportunities. At least nine hours must be taken in graduate programs outside the Division of Forestry. Some research assistantships are available.

WISCONSIN

University of Wisconsin, Madison
Center for Environmental Comm.
and Education Studies
Environmental Communications
(M.A., M.S., Ph.D.)

Dr. Clay Schoenfeld, Chairman
Center for Environmental Comm.
& Education Studies
433 North Murray
University of Wisconsin
Madison, WI 53706

The Center for Environmental Communications and Education Studies is an informal consortium of faculty and students from a number of UW-Madison departments, developed to appropriate cooperative teaching, research, and extension programs. The Center aids the professional training of specialists in environmental communications, sponsors studies of environmental communications media and methods, and provides various symposia and services.

University of Wisconsin, Madison
Department of Agricultural
Journalism
Natural Resources Communication
Agricultural Journalism (M.S.)
Mass Communications (Ph.D.)

John E. Ross
440 Henry Mall, Rm 105
University of Wisconsin
Madison, WI 53706

Students may specialize in Natural Resources or Science Writing at the B.S. level. The M.S. (thesis degree) concentrates in the theory and practice of environmental and resource communications. The Ph.D. (thesis degree) emphasizes research in behavioral and/or media aspects of communication.

University of Wisconsin, Madison
Institute for Environmental Studies
Land Resources Program
(M.S., Ph.D.)

Barbara L. Borns
Academic Support Specialist
Institute for Environmental Studies
60 Science Hall
550 N. Park Street
University of Wisconsin
Madison, WI 53706

Interdisciplinary program leading to Land Resources M.S. and Ph.D. with Land Resources major. Especially designed for students wishing to broaden their knowledge related to land and natural resources or who, because of employment or other experience, need special training in technical, social or management aspects of land.

University of Wisconsin, Madison

Institute for Environmental Studies
Water Resources Management Program
(M.S.)

Barbara L. Borns
Administrative Program Manager
Institute for Environmental Studies
60 Science Hall
550 N. Park Street
University of Wisconsin-Madison
Madison, WI 53706

Water Resources Management is an interdisciplinary program leading to the Master of Science degree in Water Resources Management. Students gain breadth in relevant planning and management areas while developing depth in one of several area specialties. The program prepares graduates for employment in water resources management activities. In lieu of a thesis, a team water resource management project is required, normally resulting in a published report.

University of Wisconsin, Stevens Point

College of Natural Resources
Environmental Education
(M.S.)

Dr. Richard Wilke, Assoc. Dean
College of Natural Resources
University of Wisconsin
Stevens Point, WI 54481

The College of Natural Resources offers both an undergraduate and graduate program in Environmental Education. Students can specialize in Environmental Education Instruction, Adult and Community Based EE, Youth Programming, Environmental Communication or Environmental Interpretation. In all cases, students develop competencies in ecology, environmental awareness, issue investigation and evaluation, and environmental action. Relevant practical experience is available for all through the University's Central Wisconsin Environmental Station and Schmeeckle Reserve.

WYOMING

University of Wyoming

Grad. Program in Community & Regional Planning
Master in Planning Program
(M.P.)

Hans Bleiker, Director
Community & Regional Planning Program
c/o Dept. of Geography
University of Wyoming
Laramie, WY 82071

This program is designed to prepare individuals to function as managers, directors and administratory of multi-disciplinary, public-sector problem-solving/decision-making efforts. The core courses are taught in the format of weekend seminars. This format allows non-local public officials and other working professionals to take the courses with a minimum of interference with their jobs.

University of Wyoming
Dept. of Geography/Planning/
Recreation
Grad. Program in Community &
Regional Planning
(Master of Planning)

Hans Bleiker, Director
Box 3371
University of Wyoming
Laramie, WY 82071

Our core courses develop your Problem-Solving & Decision-Making expertise because that's what planning is: Problem-Solving & Decision-Making. After having all the fundamental tools for personal and corporate Problem-Solving & Decision-Making, you advance to learning the tools for public-sector Problem-Solving & Decision-Making. Specifically, you learn a methodology for preventing and/or resolving the kinds of public conflict that often stand in the way of solving important public-sector problems.

CANADA

Simon Fraser University
Faculty of Education
Environmental Education
(M.Ed.; M.A., Ed.; M.Sc., Ed.;
Ph.D.)

Dr. Milton McClaren
Associate Professor and
Coordinator
Environmental Education Emphasis
Faculty of Education
Simon Fraser University
Burnaby, British Columbia, V5A 1S6
CANADA

The faculty of education allows students in graduate study in curriculum and instruction to undertake a special emphasis in environmental education. The program takes an interdisciplinary approach to EE, addressing school-based and non-school-based approaches. The program also considers urban studies, outdoor education, and contemporary environmental/social issues.

University of Alberta
Department of Forest Science
Interpretation Studies option of
the Wildland Recreation Program
(M.Sc., Ph.D.)

Dr. James R. Butler
Wildland Recreation &
Interpretation Studies
Department of Forest Science
The University of Alberta
Edmonton, Alberta T6G 2H1
CANADA

Graduate studies in Environmental Interpretation are within the M.Sc. (Wildland Recreation) Degree. Program is directed to the development of Interpretive Managers and researchers more than as practitioners. Strong international focus. Five specific interpretation courses are available for graduate credit. Program has a Parks, Wildlife, Natural Resource Management emphasis.

University of British Columbia, Vancouver

Resource Management Science
(M.Sc., Ph.D.)

L. M. Lavkulich, Chairman
Resource Management Science
University of British Columbia
3075 West Brook Mall
Vancouver, British Columbia V6T 2A2
CANADA

Program is an interdisciplinary program in resource management. Students may specialize in a number of concentrations via land management, wildlife management, fisheries management, range management, water resources management and ecological policy analysis. New concentrations being developed include renewable energy and aquaculture. Programs are "tailor-made" for individual students to meet student desires as well as academic excellence.

The University of British Columbia, Vancouver

School of Community
and Regional Planning
(M.A., M.Sc., Ph.D.)

Professor Anthony H.J. Dorcey
Community and Regional Planning
University of British Columbia
6333 Memorial Road
Vancouver, British Columbia V6T 1W5
CANADA

The School offers Master's and Ph.D degrees in Natural Resources Planning. The program is concerned with planning for resources on the basis of an understanding of the natural systems, socio-economic systems, and the institutional arrangements for decision-making. The interdependence of these elements is emphasized in the School's approach to planning.

The University of Calgary

Faculty of Environmental Design
Environmental Science
(M.E.Des.)

Professor Dixon Thompson,
Programme Director
Faculty of Environmental Design
The University of Calgary
Calgary, Alberta T2N 1N4
CANADA

The degree Master of Environmental Design (Environmental Science) prepares students for the new and expanding professional and scientific research opportunities in environmental consultant practices and government programmes. It embraces the spectrum of interests, among them, impact assessment, landscape rehabilitation, ecological analysis and modelling and research, wildlife management, energy and water conservation and management. The programme normally requires three years of study. Graduates are in high demand in both public and private sectors.

University of Toronto

Institute for Environmental Studies
Collaborative Programme in Env. St.
(M.A., M.Sc.)

Professor A. P. Grima
Instit. for Environmental Studies
Haultain Building
170 College Street
University of Toronto
Toronto, Ontario M5S 1A4
CANADA

The Institute for Environmental Studies is an interdisciplinary center for research and study which offers association with a wide range of biologists, engineers and social scientists. The primary goal of the Institute is to provide the facilities and academic cllimate for problem-oriented research to those who wish to maintain their discipline-based academic work. M.A./M.Sc. programmes are therefore undertaken on a collaborative basis with the departments of Geogogy, Botany, Forestry, Zoology, Geography, Anthropology, Political Science and Public Administration.